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ADENOIDS AND NOCTURNAL ENURESIS.

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I RECENTLY contributed to the 'Lancet' an article on the above subject, and the Editor of this JOURNAL has courteously invited me to develop some of the points which were therein of necessity very cursorily treated. My thesis in that article briefly stated was that, contrary to the teaching of the text-books, adenoids and nocturnal incontinence do not stand in any causal relationship to one another, and that when they happen to be associated they are due to a common cause, namely an insufficiency of the internal secretion of the thyroid gland. I showed that a large proportion of cases of enuresis may be cured and the vast majority ameliorated in a comparatively short time by the discriminating exhibition of thyroid extract. I am not at present prepared to make the same assertion with regard to adenoids, though several of the cases which I have at present under observation encourage the hope that these troublesome vegetations may eventually be spirited away by means purely medicinal, and the 80 per cent. of children who are said to suffer from them thus rescued from the enemy.

When, in 1874, Meyer first described adenoid vegetations, their very existence was stoutly denied, and he was accused of having invented a bogey. Ultimately, however, his views obtained credence, and, as usually happens in such cases, professional opinion swung to the other extreme; so that now for some years past adenoids have been confidently regarded as the source of almost every ill to which childhood's flesh is heir. Careful observers were not slow to point out that the victim of adenoids possesses a special facies: the listless eye, the snub nose, the open mouth, which displays the rabbits'-teeth; and that the jaws, more especially the upper, are badly developed, giving rise to characteristic deformities, of which the Gothic or high-arched palate is the most constant. Inasmuch as these features were all found as associates or accompaniments of adenoids, they were, naturally enough perhaps, attributed to the action of these vegetations in blocking the nasal air-way. The time seems now to have arrived when it would be well to revise this attitude, for it is quite certain that many of the so-called consequences may, and frequently do, arise quite independently of their supposed cause.

It has been the same with nocturnal enuresis. Because this troublesome, unpleasant, and socially disabling condition is frequently found in association with adenoids, the latter have been, and still are, cited as a cause of the former, in spite of the fact that removal of the adenoids is admitted, even by laryngologists, to afford a very uncertain prospect of cure for the enuresis. I think I have adduced sufficient evidence to convince unprejudiced minds that the association between these two is purely incidental, that the one may occur without the other, and that both are manifestations of the same underlying cause. My purpose in the present paper is to call attention to some of the minor, the less obvious manifestations of the same cause, so that thyroid insufficiency may be recognised and treated before it has produced structural deformities or rendered a young life miserable.

In the series of cases which Mr. Sydney Vosper and I have had under observation at the Metropolitan Hospital one fact has emerged very prominently, and that is that the majority of the cases of enuresis which were successfully treated by thyroid extract showed a subnormal temperature at the outset, and that the temperature gradually rose to normal as the incontinence subsided. Nor was this subnormality of temperature purely objective. All the children had cold extremities, with fingers that "go dead." Most of them were grossly over-clothed. Remonstrances on this latter point were

always met by the objection that it was impossible otherwise to keep the children warm, and that even so they were always hugging the fire. The older patients asserted that they felt cold even in summer time, and that they were always worse at night. This depression of temperature, especially of nocturnal temperature, is a marked and characteristic feature of complete myxœdema, and it is therefore not surprising that it should appear to some extent in minor degrees of thyroid insufficiency. Out-patient work does not lend itself to the accurate estimation of temperatures, so I requested that very careful observations should be made in one case, an inmate of the French Hospital. The chart shows that during the period of his enuresis his evening temperature was generally 96·2° F., and his morning, 97·2° F.

It is interesting to note that my solitary case of complete failure never had an afternoon temperature below 98° F., and that during the thyroid treatment it rose to 99° F.

The constancy of this sign of subnormal temperature in association with the cases of nocturnal enuresis which are successfully treated by thyroid extract, and its disappearance coincidently with the enuresis, might lead one to suppose that the incontinence was due to the subnormal temperature, especially as even in health the application of cold is known to provoke micturition. Such is not, however, the view which I wish to advance. I believe that both these conditions are due to thyroid insufficiency. That the one is I have already sufficiently contended; that the other—the depression of temperature—is so too, I find supported, not only by the argument from the case of myxœdema, but also by the statement of Léopold-Lévi and H. de Rothschild,* who have made a most careful study of the functions of this gland, that the thyroid is "un véritable calorifère de l'organisme," and that of Dr. Harry Campbell† that the "thyroid secretion plays the part of a bellows, causing the vital fire to burn more fiercely." Among the least obvious but most readily ascertained symptoms of thyroid insufficiency, I would, therefore, place a persistently subnormal temperature, especially when the depression is greatest at night. Such a state of matters may be suspected if a child is unduly chilly, if its hands and feet are always cold, but more particularly if, when it contracts a febrile disease, such as measles or scarlet fever, the temperature falls

* 'Études sur la Physio-Pathologie du Corps Thyroide,' Paris, 1908 (Octave Doin), p. 47.

† 'Lancet,' May the 24th, 1902.

markedly short of the elevation which usually accompanies the disease.

A second feature in the cases at the Metropolitan Hospital which struck Mr. Vosper and myself was that the majority of the children, when they first presented themselves, were undersized, and that nearly all of them weighed considerably less than they should have done. If this was, in some ways, only to be expected, the same cannot be said of the effect of the treatment, which, in the matter of the weight, was sometimes so astonishing as to give rise to a suspicion that some mistake had been made. This was notably the case with my first patient of this kind, who in six days from the beginning of the thyroid treatment had gained no less than 5 lb., and a week later had added another 2 lb. 7 oz. In this instance, at any rate, no mistake was possible, for I weighed the child myself in the presence of his mother, who made an independent note of the figures. Most of the patients at the Metropolitan Hospital showed the same phenomenon, though in a less marked degree, with the notable exception already mentioned, who, instead of gaining weight, lost it.

The fact that these children should have gained weight is very instructive. The purpose for which thyroid extract is most generally employed is the reduction of corpulence, and in suitable cases it effects this purpose admirably. How, then, can it be possible for it to have acted as it undoubtedly did in these cases? The answer would seem to be as follows: In order to produce emaciation it is necessary that the thyroid, either as secretion or extract, should be present in excess. This is seen in Graves' disease, in which some at least of the elements which compose the secretion are present in very great excess, and in which emaciation is a marked feature. Thyroid insufficiency, on the other hand, in adults is generally characterised by obesity. With children, however, it is different. With them an insufficiency which falls short of complete absence produces infantilism, the subjects of which are rarely corpulent. I am not now referring to the absolute athyroidea of cretinism (which differs from mere inadequacy as definitely as blindness differs from myopia), but to the various types of infantilism in which thyroid extract has triumphantly proved its curative value. The factor which decides this divergence between the results of thyroid insufficiency in adults and the same insufficiency in children, is provided by the fact that the need for the salts of calcium at the two periods of life is widely different. One of the most important functions of the thyroid secretion is admittedly that of fixing the

calcium salts in the tissues. Without a sufficiency of the secretion the salts cannot be utilised, bone-formation is defective, and the child fails to grow. In the adult there is not the same necessity for calcium, and the thyroid insufficiency shows itself chiefly by inadequate metabolism and the consequent excessive deposit of fat. It may, therefore, be laid down as a general rule that when a child is being treated by thyroid extract its weight should be ascertained and recorded at regular intervals. As long as there is a gain the remedy is doing good, but as soon as there is a definite fall the borderline of safety has been crossed, and the drug should immediately be suspended. The rule is subject to this reservation, that in children of a decidedly cretinoid type, during the brief initial period when the organism is ridding itself of myxœdematous tissue the weight may remain stationary, and may even decline. In all other cases, however, a progressive loss of weight affords clear evidence of an excess of thyroid in the system, and an indication for the immediate suspension of the drug.

In connection with this power possessed by the thyroid secretion of fixing the calcium salts in the body, it may be of interest to refer briefly to the question of the high-arched palate. This deformity is very generally regarded as the result of deficient nasal respiration caused by adenoids—an explanation which is certainly incorrect. Of my cases of nocturnal enuresis described in the 'Lancet,' all had the Gothic palate, but only about one half had adenoids. I satisfied myself as to the sufficiency of the air-way in those that had not, and made the most careful inquiry for everything which might suggest that adenoids had previously existed, without finding anything to support the suggestion. In all these patients nasal respiration was, and always had been, perfectly free. The case against adenoids in the causation of the Gothic palate was thus obviously not to be sustained. It then occurred to me that, having regard to the fact that all these children had shown themselves to be the subjects of thyroid insufficiency, the defect in this internal secretion might account for the oral deformity. It is known that the responsibility for fixing the calcium salts in the body is thrown upon the thyroid gland; bone formation cannot proceed properly without the help of calcium salts; might it not be that the bones in the palatine arch of the inadequately thyroidised child remain unduly soft by reason of their deprivation of calcium, thus causing them to yield to external pressure in such a way as to convert the arch from a Norman into a Gothic structure? In searching for some support for such an iconoclastic theory I was fortunate enough to find an article by

Professor Marfan,* of the Hôpital des Enfants-Malades in Paris, in which he shows conclusively that whatever be the cause of the Gothic palate, it is certainly not due to the action of adenoid vegetations. My friend, Dr. StClair Thomson, is of the same opinion, for he tells me that the palates of children whose adenoids he has removed have continued to become increasingly Gothic in character for considerable periods after the operation. I maintain, therefore, that the high-arched palate is one of the stigmata of thyroid insufficiency; that it is produced by the yielding of the palatine bones owing to their relative poverty in calcium salts, which, in its turn, is due to an inadequacy of thyroid secretion.

The same relative absence of calcium salts from the tissues, due to the thyroid insufficiency from which they were undoubtedly suffering, probably explains another feature which was very noticeable in the incontinent children at the Metropolitan Hospital: I mean dental caries. Every one of the patients had some bad teeth, and most of their mouths presented a depressing spectacle. Dental caries is often attributed to mouth-breathing. This habit is certainly not conducive to the preservation of the teeth, but the initial fault is obviously with the defences, which are inadequate by reason of the shortage in calcium salts.

In their admirable work Léopold-Lévi and H. de Rothschild† call attention to a sign of thyroid insufficiency to which they attach the name of "the eyebrow sign" (signe du sourcil). It consists in a rarefaction, amounting sometimes to complete absence, of the hair of the outer third of the eyebrow. The diagnostic value of the sign may be stated as follows: Deficiency of the eyebrows, even when the deficiency is confined to the outer third, affords a very strong presumption in favour of thyroid inadequacy, and should always lead to a careful search for confirmatory evidence, such as urinary precipitancy, subnormal temperature, a Gothic palate, carious teeth, urticaria, mental and physical lethargy. On the other hand, perfectly developed eyebrows are by no means incompatible with a high degree of thyroid inadequacy, as shown by persistent nocturnal enuresis and abundant adenoids. The eyebrow sign is one which has the merit of being very easily observed.

In the numerous cases in which during the last four months I have prescribed thyroid extract, I am happy to say that I have met

* "Le rachitisme dans ses rapports avec la déformation ogivale de la voute palatine et l'hypertrophie chronique du tissu lymphoide du pharynx," 'La Semaine Médicale,' September the 18th, 1907.

† 'Études sur la Physio-Pathologie du Corps Thyroide' (Octave Doin, 1908).

with none of those alarming consequences of which we are sometimes taught to beware. This has no doubt been due in part to the fact that the quantities employed have always been very moderate (5 grains three times daily being regarded as a very heroic dose), and in part to the constant observation under which the patients have been kept. Signs of intolerance have certainly manifested themselves, but with the exception of tachycardia, not in the directions in which I was looking for them. The most constant of these signs was nasal catarrh. The early months of this year, it may be remembered, were particularly inclement; so that at first the complaint that a child, though better in many ways, had nevertheless developed a "cold in his head," excited in me no suspicion that the cold and the treatment might be related. The regular recurrence of the complaint in almost every case where the drug had been taken for over a month eventually compelled me to associate the two, and I have now no hesitation in affirming that one of the most significant symptoms of thyroid excess is the more or less sudden occurrence of a catarrh of considerable severity, usually confined to the nose, and I regard its appearance as a warning to suspend the treatment.

As thyroid insufficiency is characterised by a subnormal temperature and sensations of chilliness, it might be expected that thyroid excess would be accompanied by a supernormal temperature and intolerance of heat. And such is the clinical fact. Experience has taught me when giving thyroid extract to children over considerable periods of time that the thermometer is as necessary a guide as the weighing machine. So long as the subnormal readings persist, the drug may be continued; as soon, however, as the temperature reaches normal, caution is necessary; and at the first indication of a rise beyond normal, the drug must be suspended.

TYPES OF PULMONARY TUBERCULOSIS IN YOUNG CHILDREN.

By James Miller, M.D.,

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It might be thought that after so many years of careful investigation little that is new would be gathered from investigating a disease such as pulmonary tuberculosis. Yet the mere fact that the nomenclature of the disease is so complicated while the ætiology is

so simple ought to cause one to consider whether there is not some call for further inquiry.

For the past three years the author has been directing his attention particularly to tuberculous disease as it occurs in the infant, more especially to the manifestations in the lungs. For this purpose the material at his disposal is well adapted, as from October the 1st, 1906, to October the 1st, 1907, there were fifty-eight sectios performed at the General Hospital on children of five years and under, and eleven of these died of tuberculous disease. The cases have been studied as regards their microscopic appearances and their relationship to disease in other parts. The lung sections have always been stained by one of the selective methods for elastic tissue. Too much stress cannot be laid upon the advisability of carrying out such staining methods in studying lung pathology. To quote the words of Letulle, "Il est absolument indispensable de colorer d'une manière speciale le tissue élastique du poumon : sans la coloration du squelette élastique, la tuberculose pulmonaire, les scléroses, les bronchectasies rendent obscures un nombre extraordinaire de lésions." It might be added that the sections ought at the same time to be as large as possible, preferably including the whole of the lung. The reason for this is that in tuberculous disease more than in any other a small portion of the lung taken for microscopic examination is not fully representative of the disease, and certainly gives but a small idea of the distribution and method of spread. In his investigations the author has made a practice of cutting very large sections, and in a large number of cases the whole of both lungs have been cut, *i.e.* upper and lower lobes, and mounted together on one slide. The method adopted is described in detail in two publications, 'Journal of Pathology and Bacteriology,' August, 1905; 'Bulletins et Mémoires de la Société Anatomique de Paris,' Tome vii, No. 7, 1905.

The larger sections have been cut on the Délépine freezing microtome. The photographs of the sections in this paper are printed direct from the preparation, using it as a negative.

Tuberculosis is one of those diseases which vary much in their manifestations. This is pre-eminently the case with the disease as it occurs in the lungs. It is not surprising therefore that the classification of these manifestations is a matter of some difficulty. In its essence the pathology of the disease is simplicity itself, but for various reasons pulmonary tuberculosis presents peculiar difficulties when one comes to arrange and classify its appearances. This difficulty is due partly to the anatomical structure of the

organ—the lung, partly to the variability in individual susceptibility to the disease, partly to varying virulence in the strains of the causal organism. Owing to the close proximity of large and small air-passages, lung alveoli, and blood-vessels, the spread of a slowly progressive disease is a complicated matter. Owing to variety of path of entrance and to the above-mentioned anatomical complexity the point of origin of the disease is seldom an easy problem for determination. And owing to variation in resisting powers both in different individuals and in different parts of the same lung; owing, too, to the variability in virulence of the tubercle bacillus, the appearances observed in pulmonary tuberculosis present variations and complications of the most marked description.

We have said that in its essence the pathology of the disease is simplicity itself. This statement requires perhaps some support. The tubercle bacillus like most other germs is an irritant to the tissues in which it finds rest. It therefore calls forth an inflammatory reaction characterised, as in the case of all inflammatory reactions, by leucocytic aggregation, fluid exudation, and a response on the part of the fixed tissue cells of the part manifested in cell multiplication and aggregation. It is a germ which multiplies slowly, hence the changes which it produces are characterised more by chronicity than acuteness. Hence connective tissue changes tend to predominate over exudative. It is a germ with a resistant envelope, hence it is difficult to destroy and may remain latent in its activities. It contains a poison which, when diffused through a cellular area, causes a peculiar form of cell death known as caseation. Owing probably to a combination of all these characters the peculiar cell aggregation known as "the tubercle," with its giant cell, epithelioid cells, and lymphocytes, is to be explained. The changes produced by it in the lung vary in character according as the organism is deposited in the interalveolar or peri-bronchial connective tissue or within the alveolus itself; the organism is freer to grow and exudation is not limited to the same extent in the latter event, but the change is in essence the same. When the change commences in the interalveolar connective tissue the result is a so-called miliary tubercle; when the alveolus is invaded caseous pneumonia results. But a miliary tubercle may invade an alveolus, and the one process pass into the other. There is no hard and fast line.

The elastic network of the lung is affected differently under different conditions. In the chronic tubercle where formative changes predominate over destructive the elastic fibres are pushed

aside by the swelling nodule. Destruction occurs, but it is by pressure not by solution. In the acute tubercle partial destruction and solution of the elastic fibres takes place in the centre of the area where leucocyte and bacillus encounter one another. As the tuberculous area enlarges and includes more alveoli the area of destruction is no longer central, but forms a zone representing the line where cells are breaking down under the action of the bacillus. Much of the elastic scaffolding escapes, and is preserved in the caseous area almost indefinitely. When, however, cavitation occurs this elastic network is destroyed, and comes away with the caseous material.

The spread of tuberculous disease occurs by continuity of tissue, by passage along the lymph channels, by invasion of larger air-passages, and the inhalation of infective material to be deposited in other parts, and, lastly, by the invasion of blood-vessels by which emboli are carried to smaller vessels, where when caught they set up the disease process again.

But in spite of this essential simplicity in nature tuberculous disease, for reasons already stated, is most complicated and classification is correspondingly difficult. In attempting to classify all the various manifestations of the disease one may adopt several methods. One may adopt the method of arranging according to the path of entrance of the virus, whether by means of air-passages, blood-vessels or lymphatics, thus bronchogenic, hæmogenic or lymphogenic. But here certain difficulties at once present themselves. In the first place it is seldom possible to speak dogmatically as to the exact path of entrance and point of incidence of the disease. In the second place, and as a result of the first, authorities differ greatly as to the weight to be attached to the evidence. For example, Calmette regards bronchogenic tubercle as rare, if not non-existant. According to him infection of the lungs is almost always metastatic by way of the lymph channels and blood-vessels, the primary focus being the intestinal canal. On the other hand, Orth still holds the older view that a majority of cases are due to aerial infection of the air-passages. Ribbert appears to hold a similar view, but according to him the inhaled bacilli are first absorbed and carried to the bronchial glands, which become the seat of a tuberculous process, and only secondarily is the lung infected by the spread outwards from these foci. Aufrecht, on the other hand, considers that the primary portal is the tonsil, and that from it the chain of cervical lymph glands become infected, from these the bronchial, from these again caseous material passes into the large

branches of the pulmonary artery to be carried to the terminal branches of the system, thus acting as infective emboli and setting up disease partly by cutting off nutrition from the area supplied, partly by directly infecting the area.

Thus it would appear that although in individual instances the path of infection may be stated with confidence it is impossible to found any system of classification upon it. One distinct and well-defined variety of tuberculous disease—the so-called miliary tuber-

Fig. 1.

Fig. 2.

culosis—may be defined by this means, but any complete classification is impossible.

Another system upon which a classification might be founded is the distribution of the disease, whether generalised or localised, whether disseminated throughout the whole lung or restricted to certain areas and spreading from these. This method offers decidedly more promise as there can be no great difference of opinion upon the question which serves as a criterion for classification. Also there can be no doubt that by this means the two chief varieties of the disease would be marked off from one another. The first variety—

the disseminated—would correspond to what is more commonly known as miliary tuberculosis: to the second variety no inclusive term can be given at present. In certain instances it would be difficult to decide whether the case came under the one or the other category, but these would be the exception certainly in the adult. On the whole, however, this system, with properly-defined limits, appears to the author the most reasonable. By localised the author does not mean merely restricted to one lung or a part of a lung, but a condition where the indications support the view that the disease started in one lung or in a part of one lung and spread from that point.

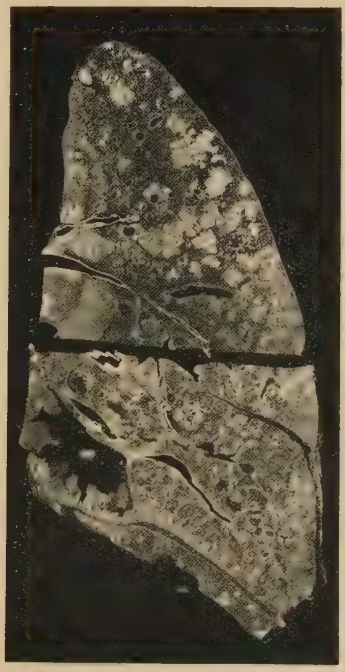
Another system of classification is that founded upon histological appearances. This again would appear to have the advantage of being one where there is little room for difference of opinion. Thus one would divide pulmonary tuberculosis primarily into interstitial tuberculosis and caseous broncho-pneumonia. The former, including conditions where tubercle granulations were scattered throughout the lung in the interalveolar septa; the latter indicating the existence of a process of exudation with consolidation and subsequent caseation, the whole being lobular, *i. e.* occupying a small bronchus with its surrounding and connecting pulmonary alveoli, in its distribution. A third category would have to be made to include cases in which there was a breaking-down of the caseous material with formation of cavities.

Now at first sight it might appear that this system of classification would leave little room for difference of opinion. This, however, is not the case. In the first place the term miliary tubercle is one about which different authorities hold different ideas. As originally used by Laennec the term, as its derivation indicates, was applied to nodules of a fair size, a usual diameter for a millet seed being 2—3 millimetres. Later on the term came to be applied to all disseminated nodules. When these nodules were submitted to microscopic investigation by Virchow he found that they divided themselves into two distinct varieties, viz. those where the nodules were interalveolar in position, and those where they consisted of a number of consolidated alveoli and air-passages. He used the term granulation to indicate the former, and he applied the term miliary tuberculosis to the condition as a whole, for the latter he introduced the term, caseous hepatisation. After the discovery of the tubercle bacillus it was shown that the same etiological factor was present in each case, and Lebert pointed out that the two processes are in their essence the same. Von Behring has suggested,

recently, that the more minute submiliary areas should be called granulations and that the term miliary tubercle should be restricted to disseminated caseous tubercle. Letulle similarly distinguishes between miliary granulations and peri-bronchial tuberculous nodules, although under the former term he includes cases of disseminated caseous broncho-pneumonia. Orth, on the other hand, includes both varieties under the term miliary tubercle, calling the smaller nodules

Fig. 3.

Fig. 4.



submiliary. He suggests that a better and more comprehensive term for the condition would be "disseminated metastatic tuberculosis." There is much to be said for the introduction of such a term, but it would be difficult to displace one so widely used as is miliary tuberculosis.

Another point upon which there is difference of opinion is whether a hard and fast line can be drawn between the interstitial on the one hand, and the intra-alveolar on the other. Orth, following Virchow, considers that the two processes are really different—that the former is a formative, the latter an exudative

process. Baumgarten, on the other hand, regards the two processes as essentially the same; whether the condition is chiefly interstitial or chiefly exudative depends upon the position of the causal germ, and upon the chronicity or acuteness of the process. Upon this question, which, after all, is only one of terms, a long polemic has been carried on for some years between the two authorities.

To sum up the matter—there are objections to all the methods of classification mentioned; none are entirely satisfactory. The only method left is to adopt a compromise between them. The author suggests the following as the simplest method of classification, and one which includes all types of the disease.

I. Disseminated metastatic tuberculosis (miliary tuberculosis).
II. Caseous broncho-pneumonia, or merely caseous pneumonia.
III. Fibro-caseous pneumonia.

Both of the last two conditions may be complicated by the presence of cavities. Thus one would speak of caseous pneumonia, or fibro-caseous pneumonia, with cavity formation. The term caseous is so intimately associated with tuberculosis, and so characteristic of the disease, that the use of the term is sufficient to indicate the nature of the disease process.

The first category includes all cases where there are discrete tuberculous areas scattered through the lung. It might be suggested that the term disseminated tuberculosis would be sufficiently descriptive of the condition. The word metastatic is, however, necessary to indicate that there has been a primary focus from which the nodules have taken origin. Under this heading the author includes all cases of the kind mentioned, however large the nodule may be. Thus the nodules in Fig. 2 are much larger than in Fig. 6, but both are included as cases of disseminated metastatic tubercle, because not only are the tuberculous areas scattered uniformly throughout the two lungs, but tubercle nodules were found in such organs as liver and spleen. This raises a point which perhaps requires explanation. The author, while recommending the use of the term disseminated metastatic tubercle for the condition in the lungs, does not intend that the name should be used for the disease as a whole where tubercle nodules are scattered throughout the organs of the body generally. The term miliary tuberculosis is much too intimately associated with that condition to afford the least hope that a more reasonable term could be substituted.

It was long ago pointed out by Orth (1885), and it has been more recently re-stated by Ribbert, that the size of the nodules in a case of disseminated metastatic tuberculosis differs in the different parts

of the lung. Not only are nodules to be observed side by side, varying greatly in size, but on an average it will be found that the nodules in the upper lobe are larger than those in the lower. This statement has been denied by von Hansemann from an examination of a series of cases. In the author's experience this is to be observed in certain instances, but it is certainly not a universal rule. For example, in Fig. 3 there is a decided difference in size between the nodules of the upper and those of the lower lobe, the former being

Fig. 5.

Fig. 6.

the larger; but in Figs. 2 and 6 such a difference is not obvious. Orth and Ribbert agree in concluding that this variation in size is due to a greater susceptibility in the apical portion of the lung to the tubercle virus, so that the disease progresses more rapidly, because, not only are the apical tubercles larger, but, according to Orth, these show more evidence of rapid growth—there being a greater amount of caseous pneumonia surrounding them. That there is a greater tendency to the deposition of tuberculous disease in the apical portion of the lungs there can be no doubt. The reason for this has been variously explained. Rindfleisch originally suggested

that the explanation was to be found in the relative poverty in blood of the apical portion of the lung, largely owing to the action of gravity upon the blood. The lesser amount of movement in the upper portion of the lung has also been suggested as a contributory cause. Now, while the above statement holds good as a general rule for adults, it is by no means so undoubted in the case of young children. There is apparently not the same tendency for the disease to restrict itself to the apices, or to make greater strides in the apical portion. The author has seen several examples in young children where the more advanced disease was certainly in the lower lobe (Fig. 4). Orth as a result of experimentation on animals, in which he produced typical phthisis, but without the tendency to apical deposition, considers that the erect attitude acting upon the blood-supply has much to do with the distribution of the disease and the relative susceptibility of the various parts of the lung. The author's observation of the same condition in very young children may be capable of a similar explanation.

But not only does one observe variation in the size of the nodules in different parts of the lung, but side by side one may see nodules varying greatly in size. This suggests that the smaller ones are more recent, that in fact the nodules are not all of the same age. It would indeed be difficult to account for the fact, if it were one, that all the nodules in a case of miliary tuberculosis are of the same age. These nodules may amount to many thousands, even millions, in a given case. It seems quite impossible that such a large number of germs are set free from the primary focus at one and the same moment. This difficulty presented itself to Ribbert, and he suggested three possible explanations: 1, multiplication of the bacilli in the blood stream itself; 2, repeated infections from the primary focus; 3, multiplication of the infecting foci by the secondary nodules becoming in their turn disseminating foci. The first alternative is probably impossible from the nature of the infecting organism, and as a matter of fact in a later publication Ribbert has given it up as an explanation. The second probably obtains. It is reasonable to suppose that for example a caseous lymph gland which has invaded a blood-vessel or the thoracic duct will not empty itself all at once, but will do so gradually, and so inject bacilli into the blood or lymph stream at successive periods. But undoubtedly the chief factor in the multiplication of miliary tubercles is the third.

In cases of rapidly spreading disseminated metastatic tuberculosis where the caseous change is in excess of the formative, one

does not require to search far before one comes to evidence of invasion of the caseous process through the wall of blood-vessels. This is particularly to be observed in the cases of rootlets of the pulmonary veins owing to the relative thinness of their walls. This process is well seen in Fig. 10.

The importance of this invasion is obvious. So long as the inflammatory process is merely formative in character the result is

Fig. 7.

Fig. 8.

merely partial or total occlusion of the vessel lumen by granulation tissue, but when the change is more acute and caseation occurs *pari passu* with the cell accumulation the presence of such material within the vessel lumen means blood infection, and one has been able to demonstrate frequently the presence of bacilli in the caseous material inside the vessel wall. By means of this process of implication of vessels the number of infecting foci is multiplied many times, and there is no difficulty in accounting for the numerous areas in lung and other organs, and the presence of areas apparently of very various age. Branches of the pulmonary artery are

invaded as well as veins. In this way the further infection of the lung is more direct, portions of the caseous material being carried to the alveolar capillaries, and setting up new foci where they come to rest. The infection of large branches of the pulmonary artery in the way described by Aufrecht and Goerdeler the author has not observed. It is difficult to imagine the extremely thick layers of elastic tissue of the larger branches being invaded in this way by means of caseous lymph glands.

With regard to the site of the primary lesion in these cases of metastatic tuberculosis Weigert long ago emphasised the importance of the invasion of the thoracic duct by a caseous retro-peritoneal gland. Ribbert has found this method of infection to obtain in a number of cases. In the author's experience this mode of infection does not occur in any large proportion of cases. He has been able to demonstrate it in at least two, but in a large number such infection cannot be shown to exist. When one observes, however, the way in which small vein rootlets are invaded by spreading tuberculous disease in the lung one has little difficulty in understanding how dissemination occurs when even a small area of the lung is affected. Rather one is surprised that such dissemination is not the rule. In the author's experience of the disease in infants evidence of this blood infection is the rule. Practically in all his cases in young children there has been evidence that bacilli have entered the blood and have been deposited in various organs and tissues. In a large proportion of cases there has been evidence in favour of the intestinal origin of the disease, and in one instance of pulmonary tuberculosis with cavitation the author has grown a strain of the tubercle bacillus having characters corresponding to the bovine type.

The next great group of pulmonary tuberculous conditions is the caseous pneumonias, or as they usually are, at any rate in this early stage, caseous broncho-pneumonias. The line which divides this group from the preceding is by no means well marked. Indeed the majority of cases of disseminated metastatic tuberculosis are cases of caseous broncho-pneumonia, either partly or wholly. What places these cases among the first group rather than the second is the fact that the areas of broncho-pneumonia are disseminated throughout both lungs and have undoubtedly arisen from a blood infection. Should the areas in such cases coalesce so as to render their origin from discrete foci no longer obvious as, for example, in Fig. 4, then some term other than disseminated metastatic tubercle should obviously be applied. Should the areas be far apart and

the spread be by involvement of neighbouring areas of lung, as in Fig. 8, then equally some other term seems warranted. The method of spread in these cases is more by continuity of tissue, although the lymphatics bear a part and invasion of blood-vessels is just as likely to occur as in the disseminated type so that a localised caseous broncho-pneumonia may become a disseminated metastatic. This is the type of disease seen in the early acute phthisis of the adult, but anything exactly corresponding to the latter condition the author

Fig. 9.

has not observed in young children. He has never seen tuberculous disease limited to the lung in the infant such as one so often observes in the adult. There are always other foci in distant parts and the general rule is to find that the disease is disseminated, in other words that there has been a blood infection. This is not surprising when we consider that when the area of caseation is large enough to involve several alveoli there are almost certainly small rootlets of the pulmonary vein also implicated. The reason why this blood infection does not occur so frequently in the adult is probably because the condition is seldom so acute as in the child ;

blood-vessels are therefore obliterated by the inflammatory change which spreads in advance of the caseous. While in the child in cases of caseous broncho-pneumonia, whether disseminated or localised, tubercle bacilli are usually present in enormous numbers, in the adult they are seldom found in any quantity.

As previously stated it is in such conditions of caseous pneumonia that the destruction of elastic tissue is greatest. The destruction occurring at the spreading margin at the point where the cells are breaking down previous to undergoing the caseous change.

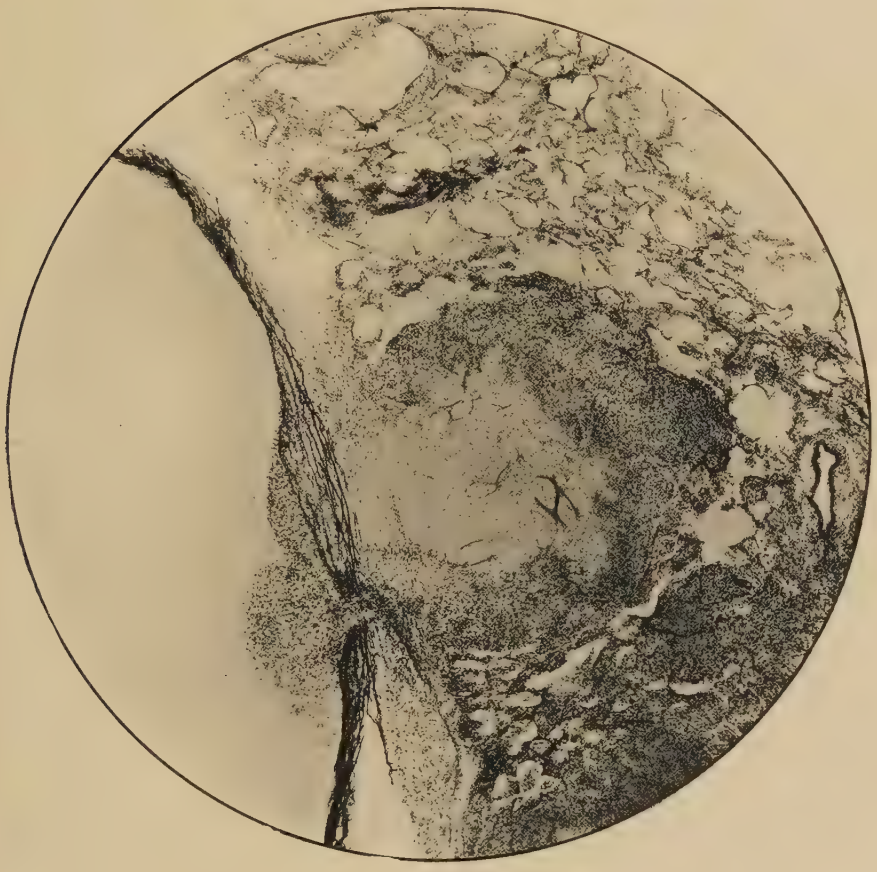
Cavitation is a common accompaniment of this variety of tuberculosis. It is by no means restricted to the apical portion of the lung in infants as already stated. Fig. 4 represents a lung with cavitation in the lower portion of the lower lobe. In more than one case of the kind the author has found such a basal cavity associated with well-marked abdominal tuberculosis. The walls of such cavities are ragged and formed of breaking-down caseous consolidated lung. About the earliest stage in this process of cavitation is it is difficult to be dogmatic. In some instances certainly the cavity originates in a dilated bronchus or bronchiole. Dilatation of such air-passages is a most common accompaniment of broncho-pneumonia of all kinds in children ; the chief factors in its production being forced expiration acting upon an elastic and muscular wall weakened by inflammatory change. Such potential cavities are seen in Fig. 4 in the upper and lower lobes, and under a greater magnification in Fig. 11. The destruction of the elastic lining will be observed in the latter instance. From such a dilated bronchiole with caseous process around it is no long step to a cavity easily visible to the naked eye, where much pulmonary tissue has been destroyed. In the walls of such cavities tubercle bacilli are not very numerous, as indeed is the case in all completely caseous areas.

The third group of tuberculous conditions of the lung in children are those where formative and destructive processes have proceeded side by side, where there has been interstitial inflammation with fibrosis, and parenchymatous inflammation with consolidation and subsequent caseation. This is the commonest condition found in phthisis of the adult, but it is rare in the infant, although by no means unknown. Four well marked cases have come under the author's notice, two of which are reproduced.

In these cases there is a marked increase of fibrous tissue between the lobules and around bronchi and vessels. This granulation tissue presses aside the lung tissue proper, so that the elastic network is found in bunches scattered here and there, all that remains of

alveoli and air passages. Cavitation is usually present, in fact was present in all four cases. In two practically the whole of the upper lobe of one lung consisted of a cavity, limited on the one side by thickened pleura, on the other by the stumps of obliterated bronchi and vessels. In one of these cases, in a child aged 1½ years,

Fig. 10.



tubercle was not diagnosed during life, the case being considered as one of empyema. The upper part of the right lung (Fig. 7) was one large cavity, the lower part of the lung was completely consolidated; the other (left) lung (Fig. 8) showed irregularly distributed caseous broncho-pneumonia. The bronchial glands on the right side were enlarged and caseous. There was a tuberculous tumour on the upper

surface of the cerebellum on the right side. The spleen showed miliary tubercle, and the mesenteric glands were enlarged and caseous. In such a case, although the condition in the right lung is by far the most advanced, it is impossible to be certain that it was the first site of the disease. There is generalised tuberculosis, and some of the lesions in other organs are of some standing. As already stated, in the author's experience tuberculosis restricted to one or other or both lungs does not occur in the child. It would seem that when infection once occurs dissemination takes place rapidly, and advanced disease in one organ is probably more an indication of lower resistance or greater susceptibility than of that organ being the primary seat of the disease. Practically all the cases which have come under the author's notice of tuberculosis in very young children (under 5) have shown either actual intestinal ulceration or enlarged and caseous mesenteric glands. This indicates, in the author's opinion, that the path of infection has been intestinal.

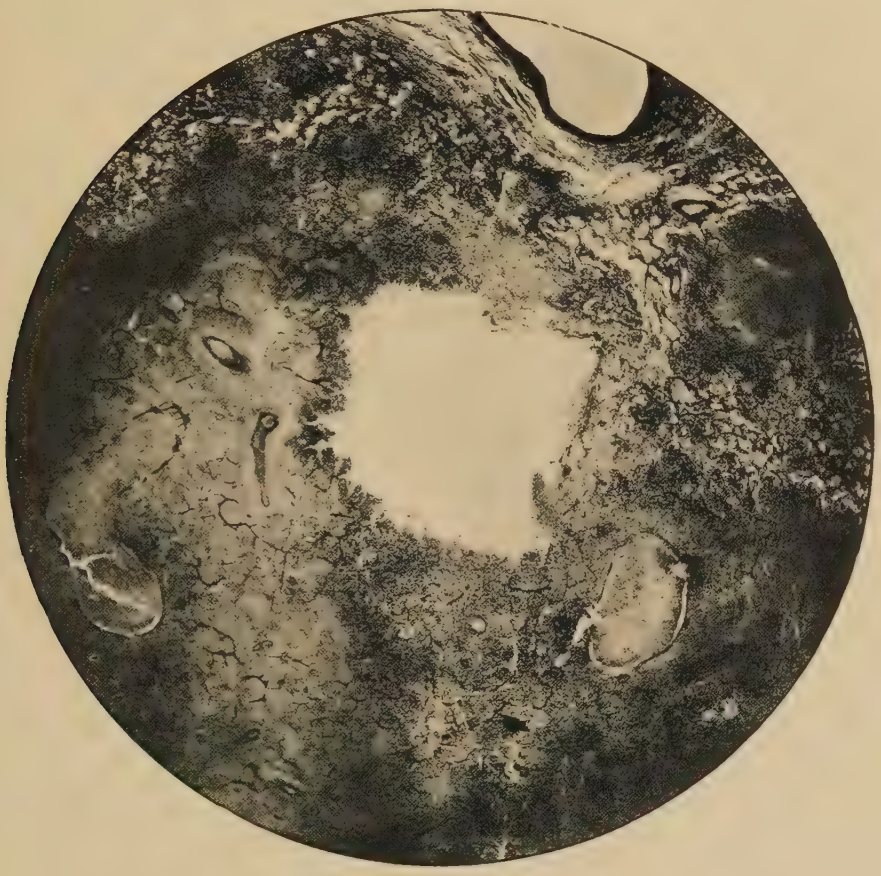
Another case of fibro-caseous pneumonia occurred in a child 1 year old. The right lung showed disseminated metastatic tuberculosis (Fig. 6). The left (Fig. 5) showed fibro-caseous tubercle with cavitation in the upper lobe, and disseminated tubercle in the lower. The bronchial glands on the right side were enlarged and caseous, the mesenteric glands were similarly affected, and there were two tuberculous ulcers in the intestine, one in the ileum, another in the cæcum. There was no miliary tubercle of liver or spleen. In this case also, although the left lung showed the most extensive disease, there was evidence of blood infection in the other lung, and there was advanced disease in the intestinal tract.

In a third case, in a child aged 4 years, there were numerous enlarged tuberculous glands in mediastinum and neck. The right lung showed disseminated metastatic tubercle, the nodules being of small size, also a large caseous nodule in lower border of lower lobe posteriorly. The left lung showed disseminated tubercle of the upper lobe and almost complete consolidation of the lower lobe, which was the seat of a fibro-caseous process with a large cavity in its lower part opened into on removing the organ. The bronchial glands on both sides were markedly enlarged and tuberculous. The small intestine showed well-marked tuberculous ulceration of the portion immediately above the ileo-cæcal valve. The mesenteric glands were enlarged and tuberculous. There was miliary tubercle of liver and spleen, and a chronic basal meningitis with hydrocephalus. The most interesting points about this case are the advanced disease both in lungs and bowel, and the presence of

fibro-caseous tuberculosis with cavitation in the lower lobe of the left lung.

For another case of advanced pulmonary tuberculosis the author is indebted to Dr. Douglas Stanley. Fig. 9 shows a section of the left lung; the upper lobe is the seat of a large cavity, the small

Fig. 11.



margin of pulmonary tissue around showing fibro-caseous pneumonia; the lower portion of the lung shows irregularly distributed caseous broncho-pneumonia.

In these cases of advanced tuberculosis it is only by studying sections stained by the elastic tissue method that one can properly understand and follow the disease. Areas which, when stained by ordinary methods would appear almost structureless, are found to

contain obliterated vessels and bronchi. The cavities in these cases are lined, not by caseous lung, but by a layer of granulation tissue, which protects the lung proper and limits the process.

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CONGENITAL HERNIA.

By J. Boyd Barrett, M.B., B.Ch.,
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In discussing a case of congenital hernia it is worth while noting a few differences in the anatomy of that region in the child compared with that of the adult. The position of the external abdominal ring corresponds in the infant to the "fold of Venus." In young adult life it is some fingers' breadth beneath this fold, and so it slowly descends until it occupies the position associated with adult life.

In infancy also it must be remembered that the internal abdominal ring is in close proximity to the external ring, and that practically the inguinal canal has no length.

The distance between the internal and external ring and the inguinal canal increases with the widening of the pelvis until the normal adult proportions are reached.

In the Children's Hospital, Temple Street, Dublin, I recently met with a case of congenital hernia on the left side in a boy, aged 4 years, which was of considerable interest.

The child was in hospital a few days before the operation. The hernia was a large one and never disappeared into the abdomen. It could not be entirely reduced by taxis. Attempts at reduction seemed to pain the child. Moreover, the nurse in charge said that the child would sometimes cry as if in pain. Beyond the fact that the child was in need of circumcision there was nothing else worth noting about the case. The history was indefinite.

An incision was made in the usual line for inguinal hernia in children. The sac was opened and an attempt made to return the contents to the abdominal cavity. This proved difficult, and it was then discovered that the appendix was adherent to the left testicle, an unusual condition which explained the symptoms before operation.

The free end of the appendix was also adherent to the cæcum. The latter, it should be mentioned, was also in the sac.

The adhesions were ligatured and cut. The appendix was removed as it was thought that the adhesions were probably due to inflammation in it, and the contents of the sac returned to the abdomen.

The internal ring was extremely large, and three sutures were employed to close the conjoint tendon to Poupart's ligament. The boy was then circumcised. Both wounds healed by first intention and the operation was successful.

It is, I think, unusual to find the appendix adherent to the left testis. No doubt the cæcum and appendix are often found in the hernial sacs on the right side. It is common in children, but the condition I have endeavoured to describe is, I believe, somewhat remarkable. Had an acute attack of appendicitis occurred in this case the diagnosis would have been a matter of some difficulty.

The accurate explanation of the condition is not quite simple. The occurrence of adhesions would point to the probability of a slight attack of appendicitis, and also that the appendix had been in the sac for some time.

The appendix was of the usual length. The internal ring was very deficient, and I would suggest the possibility that the ascending colon was provided with a mesentery, which occurs in a limited number of cases.

These cases in which the ascending colon is entirely surrounded by peritoneum and provided with a mesentery are not frequent, and the extent of movement is limited.

Editorials.

INSPECTION OF ELEMENTARY SCHOOL CHILDREN AND THE SECTION FOR THE STUDY OF DISEASE IN CHILDREN OF THE ROYAL SOCIETY OF MEDICINE.

The Board of Education, in their recently issued report for the year 1907–1908, make the following statements in regard to the medical inspection of elementary school children: "The Board's first memorandum on this subject was followed in February, 1908, by a model schedule indicating the ground which should be covered by the medical inspection of school children, and an explanatory memorandum (Circular 582)." "The schedule was purposely made comprehensive, and its apparently detailed character is not inconsistent with the statement in the memorandum that the inspection of a child should not, *on the average*, take more than a few minutes." "The experience of those local education authorities who have made substantial progress with the work has confirmed the Board's opinion in this respect."

Why the Board should so harp on the time occupied in inspection is not clear, unless it be to impress upon local education authorities that the services the doctors render are of so trifling a character that the scale of fees need only be fixed in proportion to the Board's utterances on this matter. But this inspection is not so simple an affair as the Board would fain make these local authorities, which control the public purse, believe, if their model schedule with its twenty-seven reference numbers is to be taken seriously. The medical inspector will quickly be undeceived as to the time which will be occupied in these inspections if he adheres to their instructions as confirmed by the above report.

But the Board of Education have missed a vital point in their memorandum. Stress should not be laid upon the time to be occupied in these inspections but rather on *the way the work should be done*. This latter is *most* important in the interests of the children.

We have given the Board's own view of the worth of their *magnum opus*, but unfortunately their appraisement of its value is not in harmony with those best qualified to judge in such highly technical matters.

The Section for the Study of Disease in Children of the Royal Society of Medicine, at a largely attended meeting at 20, Hanover Square, on May the 28th last, unanimously passed the following resolution: That in the opinion of the Section "it is desirable that the Board of Education should issue forthwith a complete set of forms for use in the medical inspection of elementary school children in accordance with Circular 582, issued by the Board on January the 23rd, 1908, and should issue definite instructions to medical officers as to the manner in which the medical inspection should be carried out."

Reading between the lines the Section for the Study of Disease in Children of the Royal Society of Medicine do not altogether approve of this model schedule issued by the Board of Education, and they are not in accord with the Board of Education's instructions to local education authorities in their Circular 582 as to the manner in which medical inspection should be carried out.

This is a very serious indictment indeed, coming, as it does, from so learned an authority, and is a matter which appears to require the Board of Education's immediate attention.

It is evident, therefore, that the Board of Education have no occasion for self-congratulation, which is the keynote of their report to which attention has been drawn; on the contrary, they have caused a considerable amount of dissatisfaction throughout the country by their pusillanimous attitude and two-way-facing directions. The Board of Education would be well advised to cease writing their own panegyrics, which are so transparent that they would not deceive a child. No amount of puffs in relation to their "Schedule of Medical Inspection" and "Notes for Inspecting Officer" in association with Circular 582 to local education authorities will reconcile the conflicting statements therein laid down—like oil and water they cannot, and will not, mix.

The Board of Education should make good their promise contained in Circular 582, and comply with this very reasonable and timely mandate. Emanating, as it does, from an authority which comprises the leading children's specialists in the land its opinion commands the highest respect and the closest attention.

Parliament has conferred power upon the Board of Education—

a corporation of laymen—to take in hand the medical inspection of elementary school children.

Judging by the contradictory literature which they have contributed on this important subject, and by the policy they have adopted of not supporting medical inspectors who have simply carried out their instructions, this mandate has appeared none too soon.

THE MEDICAL TREATMENT OF SCHOOL CHILDREN.

The act which provided for the medical inspection of school children came into operation on January the 1st, 1908, and in consequence the school children all over the country have been examined and many reports issued of the defects which have been found. Although the large amount of facts which have been obtained as the result of this inspection are very valuable as indicating the health of the rising generation, yet the work that has been performed will remain almost worthless unless some means be provided whereby those children who are found to be defective shall receive adequate treatment to remove or relieve the physical defects, and to cure or alleviate any diseases from which they may be suffering. The first step in order that treatment may follow will naturally be the notification of the defects or diseases to the parents. This alone must have a beneficial effect in increasing the general health of the children, because by it the parents will be educated to take more interest and care in the soundness and cleanliness of their children's bodies. Many parents fail to realise that their children are not healthy unless it be pointed out to them, and this is partly due to their ignorance, partly to their lack of observation, and in some cases, unfortunately, due to gross carelessness and even neglect. Many of the conditions which cause ill-health in children can be removed by simple instructions to the parents. Children suffering from uncleanliness and from certain of the parasitic diseases of the skin and scalp do not require to be specially treated by a medical practitioner, and all that is necessary ought to be performed at home by the parents when they receive the report of the medical inspector. An arrangement might be made whereby school nurses should visit

the children in their homes to see that the instructions are followed out.

The chief defects which are found on the examination of the children are defects of eyesight, carious teeth, and enlarged tonsils and adenoids. These and the other less common, though important affections, require special treatment, and such treatment must naturally and logically follow inspection in order that the greatest good may accrue. The community has instituted the inspection, and it can hardly draw back now after having shown up the defects that exist without making some provision for their amelioration.

In a certain number of instances the parents are able themselves to provide for the necessary treatment of their children, but these cases are only a small proportion. It should be the duty of the Education Department to make sure that those parents who are able to pay for medical treatment do not shirk this obligation. The great majority of the parents, however, cannot afford the expense of providing medical treatment, and the difficult problem arises as to what is the most satisfactory manner to deal with such cases. In large towns where there are one or two general hospitals, a children's hospital, and also several special hospitals, an increase of a few thousands in the number of out-patients distributed equally between them ought not to increase materially the work at each hospital, but in order that all the cases should not be sent directly to the hospitals we consider that the proper way would be for the children to be first referred to their own medical practitioners, and that it should be left to them to decide whether they were suitable cases for hospital treatment or not. This would mean that no child would be treated at a hospital without a note from the medical practitioner, and would ensure that the medical practitioner was not cheated out of any patients who ought to come under his care. This plan would entail a little more public expense, for it would only be fair for the Education Department to contribute towards the maintenance of the hospitals. If, on the other hand, it was found that there was a great increase in the hospital work, and in consequence in the hospital expenditure, then, perhaps, a better plan would be for the Education Department to instruct the parents to take the children to a medical practitioner, who would receive the fee for the treatment

of each child on a fixed scale from the Education Department. This would mean a considerable increase of public expense, but the good results which would follow the better health of the children, in that they would grow up to be stronger and more useful citizens, and therefore less likely later in life to come upon the public expense for their maintenance, would without doubt more than compensate for the initial outlay to preserve their health in childhood. In the country districts the payment of fees on a fixed scale to the medical practitioners of the neighbourhood for the treatment of the children would seem to be the most satisfactory plan to adopt.

We do not think that the treatment of the children should be undertaken by the medical inspectors of the school, nor by any officers especially appointed for that purpose. The establishment of school clinics would be a plan which we would deplore, for it would mean that there would be an increased number of medical men in the large towns who would consider themselves specialists in the diseases of children, and as a result a new class of consultants in this branch of medicine would spring up. There are so many consulting physicians and surgeons at the present time that it would be folly to add to their list the members of the staffs of school clinics. We think, therefore, that the present medical assistance which can be obtained is adequate to cope with the increased amount of work which is necessary, in order that the defects and diseases revealed by the inspection of school children may receive proper treatment.

The Royal Society of Medicine.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Friday, April the 23rd, 1909.

Mr. R. Clement Lucas *in the Chair.*

A Case of Cystic Hygromata in a girl, aged 15 months, under the right arm, on the right elbow and over the right scapula was shown by Mr. Hugh Lett. The mass in the axilla was soft, with irregular nodular areas. The skin attached to it was adherent and dimpled. There were no dilated veins or pulsation.

Multiple Masses under the Skin of the Thigh was also shown by Mr. Hugh Lett. The patient was a girl, aged 6 months. The swellings had been noticed since birth. On seeing the case three weeks ago the appearances had suggested lipomata, but one of the masses had now become softened and discoloured and showed ulceration. The condition was, therefore, one of multiple tuberculous abcesses.

A Tumour of the Femur in a boy, aged 15 years, was also shown by Mr. Hugh Lett. He had noticed a lump in the right thigh four years ago, which had been growing slowly since. It caused the patient a little pain when the weather was damp. The urine contained a trace of albumin.

A Case of Multiple Osteomata in a boy, aged $4\frac{1}{2}$ years, was also shown by Mr. Hugh Lett. He appeared to be normal until the age of eighteen months, when his mother noticed lumps on his legs. Osteomata could be seen or felt at the ends of both tibiæ and humeri, at the adductor tubercles of the femora, on the vertebral borders and spines of the scapulæ, at the outer end of the right clavicle, on the ribs at the junctions of the cartilages and bone, and there were symmetrical nodes on the skull. The boy was well except that he got tired very quickly. The tumours were roughly symmetrical.

The Chairman said he had but little doubt that the three small swellings in Case 2 were tuberculous skin abscesses. The fact that one had become discoloured since Mr. Lett saw it three weeks ago indicated the probable contents of the others, namely sweet white pus. With regard to the tumour on the thigh, he thought that it was an ossifying enchondroma, usually known as an exostosis. The photograph showed that the bony part was growing, and as it was single he would be inclined to remove it.

A Specimen from a Case of Congenital Stenosis of the Rectum, Colon, and part of the Ileum was shown by Mr. R. Warren. The baby was three days old and had passed no motion since birth. The finger could be passed one to two inches into the rectum, and a small tube of 5 mm. bore would pass three inches or more. A little gas came away, but no meconium. An enterostomy was performed, but the child died. Post-mortem the gut was stenosed, but not blocked. Water could be passed both ways with a syringe.

A Case of Patent Ductus Arteriosus without Murmur was shown by Dr. Parkes Weber. The child came under observation aged 2 weeks, suffering from debility and cyanosis of variable degree. It could not take the breast properly. There was no murmur, and no certain signs of valvular disease could be detected. Its temperature was sub-normal and it was subject to respiratory spasms, during which cyanosis was increased. There were $4\frac{1}{5}$ million red corpuscles to the cubic millimetre of blood. The child died at $6\frac{1}{2}$ weeks. The foramen ovale was not completely closed, admitting the passage of a pencil five millimetres in diameter. The ductus measured fifteen millimetres in length, and its channel was about 5 millimetres in diameter, being a little wider at its aortic end; the aorta was very slightly constricted where joined by the ductus. The lungs showed atelectatic patches in the upper lobes. The liver was slightly enlarged.

Dr. Cautley asked Dr. Weber whether he ascribed the cyanosis to the patent ductus or to the condition of the lungs. He thought himself that it

was not due to patent ductus, because if there were mixing of the bloods there would be an excessive number of red cells, which was not the case.

Dr. Weber thought that the atelectatic patches had a share in producing the clinical condition.

A Case of Extreme Deformity of the Chest with Fibrosis of the Left Lung was shown by Dr. A. J. Jex-Blake. The patient had always been weakly. There was a history of consumption on the father's side of the family. At the age of seven the patient had bronchitis and pneumonia, and three months later was admitted into hospital with an abscess over the left lower rib which was found to communicate with the pleura. Two operations were done to let out pus. Three months later the whole left chest was flattened and dull, with tubular breath-sounds. The fingers showed clubbing. There was a copious discharge from the tube and from a sinus close to the sternum. Two operations had been done subsequently. He had had a chronic discharge on and off from one or other of the sinuses in the chest ever since. The patient showed extreme deformity and collapse of the left chest, causing scoliosis and much limitation of the movements of the spine. The heart was displaced, the right lung emphysematous, and the fingers cyanosed and clubbed. Dr. Jex-Blake asked whether it was now too late to institute expansion of the lung, as there had been none for four and a half years. Were breathing exercises or an operation, such as decapsulation of the lung, likely to do good?

Dr. E. I. Spriggs asked whether the child was bringing up sputum? If there was evidence of considerable dilatation of the tube, he doubted whether respiratory exercises would be of much value. If not, he thought that although they would not cure the deformity they would prevent it becoming still more accentuated as the child grew older.

The Chairman thought that anything which might bring about amelioration should be tried.

Mr. R. Warren said he had seen a similar case, though less severe, improved by deep breathing with raising of the arms so as to enlarge the chest. The chest had expanded one or two inches, and the scoliosis was improved. He thought it worth trying in the present case.

Dr. Jex-Blake replied that the child suffered from bronchitis on admission, but at the present time was not bringing up any sputum. There was no family history of syphilis. The mother had eight living children; a ninth had died in infancy, but there were no miscarriages.

A Case of Congenital Dilatation of the Colon was shown by Dr. George Carpenter. The child was a female infant, aged 1 month. Diarrhœa and vomiting began in the first week, and ceased on March the 28th. The bowels were then not opened until admitted into hospital on April the 2nd. The abdomen was then enormously distended. *Per rectum* by bimanual palpation thickening of the bowel could be felt, and offensive fluid fæces of fairly normal colour followed the withdrawal of the finger. Three days later, after treatment with enemata and aperients, normal motions were passed and the distension had disappeared. It then began to increase again, but was relieved by a turpentine enema. An X-ray photograph was shown, in which the colon, which had been injected with a solution of starch and bismuth, was obviously dilated, forming a U-shaped tube with the base of the U at the splenic flexure, the ascending and transverse colon forming one leg of the U

and the remainder the other. He invited the surgeons to pass an opinion as to whether an operation was advisable.

Dr. E. I. Spriggs thought that if the diagnosis was to rest on the skiagram shown it was on an insecure basis, especially when it was remembered that a solution of starch and bismuth had been injected into the colon under a constant pressure, and that unless the plate was pressed down on the colon there would be a considerable spreading of shadow. The darkness on the right side of the U was also contributed to by the liver.

Dr. Cautley supported Dr. Spriggs. He thought that a child with congenital dilatation of the colon ought to have a larger abdomen than the present child seemed to have. There might have been a temporary attack of dilatation from some acute intestinal dyspepsia, which had now passed off. He did not understand why the case was spoken of as congenital, because even if there was dilatation, according to Dr. George Carpenter the child was normally healthy until it got its attack of abdominal distension. And if a solution of bismuth and starch were injected into a child's colon it would easily become dilated.

Mr. Lockhart Mummery said the diagnosis could be cleared up by the use of the sigmoidoscope.

Dr. George Carpenter, in reply, said there was no doubt in his mind as to the nature of the case. The colon was dilated and thickened, and he based that opinion on rectal and bimanual examination and on abdominal examination after the methods described by him. These examinations supported the X-ray picture of the condition. He did not pin his faith on the X-ray examination solely: his methods of physical examination were quite sufficient to convince him apart from any such aids as X-rays and bismuth impregnated rectal enemata. There could be no doubt about the thickening of the abdominal contents; that admitted of no mistake, although the inference might be incorrect. The thickening was not peritoneal, he felt certain about that. He had once encountered such a sensation as that now experienced in the case of a mesenteric cyst, but in that case the anatomical situation was quite different. He would like to be favoured with an alternative diagnosis. He would be glad to afford Mr. Mummery an opportunity of using the sigmoidoscope in the case, but it must be realised that the pelvic outlet in infants was very small.

A Specimen from a Case of Steeple Skull, exhibited to the Section in December last, was shown by Dr. George Carpenter. The child was at that time five weeks old, and died some little time after its exhibition. The specimen was the skull bisected in the median line, and showed what appeared to be a well-developed though crumpled-up brain. The brain had accommodated itself to the shape of the skull, its front and back had approximated, and its vertex was arched up so that the frontal lobe was brought to within about one inch of the occipital lobe, the pons and crura alone intervening. There was a clot of blood surrounding and compressing the cervical cord, which appeared to be the immediate cause of death.

The Chairman commented on the rarity of the condition, and said he believed there was no specimen of the kind in the College of Surgeons Museum.

Dr. Cautley suggested that the specimen should be referred to an anatomist for report.

Dr. George Carpenter replied that he would not enter into a discussion of the skull before a full description had been written.

A Case of Solution of Continuity of the Right Clavicle since Birth was shown by Mr. A. R. Thompson. The mother had fallen down some two weeks before the birth of the child. No deformity was noticed at birth. The boy showed a right clavicle which had apparently been fractured, the two portions being connected by a false joint and forming an inverted **V**. Mr. Thompson thought the case was one of fracture, although such cases suggested the possibility of cleido-cranial dysostosis.

Mr. A. H. Tubby said this condition first came under his notice two or three months ago in a child, aged 10 months. The labour had been a difficult one, the arms being behind the shoulders. On bringing the arms down a distinct crack was heard, and there was found to be a deformity of the clavicle similar to that in Mr. Thompson's case. He operated, and found an ununited fracture with a false joint, and wired the fragments together. He had seen a similar case, in which, despite wiring, no true union took place, and feared that in Mr. Thompson's case there would be no true union, even if the false joint were excised.

Dr. Spriggs agreed that there was a fracture of the clavicle and not cleido-cranial dysostosis. In most cases of congenital deformity of the clavicle of which he had seen photographs there was evidence of deficiency of the membrane bones. In a case, for instance, published by the late Mr. Walsham, and in the photographs of Dr. George Carpenter's cases, there was evidence either of an unclosed fontanelle, a globular cranium, a high-arched palate, irregular teeth, or some deformity of the lower part of the sternum. The present case showed none of these. Again, in cleido-cranial dysostosis, although there was usually some irregular deformity of the clavicle on both sides, the fragments might be joined together by a loose joint, in which case the two parts fixed themselves in the same position as in this case. The case was an interesting one historically, because a number of cases of cleido-cranial dysostosis had been recorded as fractures even when the deformity was bilateral. Some anatomists, such as Paterson, of Liverpool, thought that the clavicle might be developed in two parts.

The Chairman expressed his agreement with those who had spoken. He thought that operation should be undertaken.

A Case of Multiple Exostoses was shown by Dr. E. I. Spriggs. The boy came to St. George's Hospital in 1902, aged 5 years, with a painful tumour in the upper end of the left tibia. At that time he showed several other small exostoses. Five years later, at the age of ten years, he came to the Victoria Hospital, and then showed exostoses of the vertebral border, of both scapulæ, and one on the spine, of the right scapula, at the insertion of the pectoralis major in the right humerus, at the lower end of both radii and ulnæ, on the left metatarsal, on the femora and tibia, and at the inner and outer ends of each clavicle. At that time he had a good deal of pain and could not dress without assistance. Muscular power was fair. At present —two years later—the bony tumours were definitely less marked. The case was interesting as showing a few tumours at the age of five, more at the age of ten, and a diminution in their relative size since.

A Paper on a Case of Meningitis Associated with the Leptothrix Bacillus was read by Dr. Milligan. A child, aged $4\frac{1}{2}$ months, was admitted into hospital with a history of a fall on the head three days previously. There was general rigidity, conjugate deviation of the eyes to right or left with lateral nystagmus. Craniotabes was present and a bulging anterior

fontanelle. Temperature 101° F. and pulse 104. A milky fluid was withdrawn by lumbar puncture, which contained an excess of polymorphonuclear leucocytes and a leptothrix bacillus, of which a photograph was shown. The organism was Gram-negative, and no growth was obtained on either agar-agar or blood-serum. The illness ran an acute course, the child having a varying temperature and dying on the fifth day after admission. A sub-dural meningitis was found post-mortem, extending over both hemispheres, especially over the vertex in front. There was an extravasation of blood on the side of the skull on which the child had fallen. The meninges were congested. Examination of the pus revealed the presence of *Diplococcus pneumoniæ*. On opening the right ear a small bead of pus welled up. A case of pyæmia and meningitis associated with a pathogenic leptothrix bacillus had been described by Ritchie and McDonald, who also spoke of terminal pneumococcal infection. Dr. McDonald had recorded five cases in which he found organisms similar to those described above in an epidemic of cerebro-spinal meningitis, and had concluded that the leptothrix was not a contamination. Dr. Milligan thought that the presence of leptothrix was more easily explained as a secondary infection, as this bacillus does occur about the mouth and throat.

Dr. Cautley said that the important point was whether leptothrix was a cause of meningitis or a secondary infection. He had seen many cases of meningitis of that type but without the leptothrix bacillus. The clinical course seemed to point to a pneumococcal infection.

A Paper on the Effects of School Life upon the Vision of the Child was read by Mr. Harman. In all cases the eyes were under the influence of atropine, the ointment of 1 per cent. having been used four times a day for a week. Of every hundred children with defective vision over seventy had hypermetropia, and less than twenty were myopic. These hundred children represent about 10 per cent. of the school children, and so the incidence of myopia amongst school children in London may be considered not to exceed 3 per cent. About 70 per cent. of the cases were girls. This Mr. Harman attributed to the girls having less outdoor exercise and not being in such a healthy condition, as well as to the fine needlework done in school by the girls. During the school age the incidence of hypermetropia increases, as may be expected from what we know of the growth of the crystalline lens. At the same time the curve of myopia rises upwards to the highest positions on the chart, and such a phenomenon as this leads to the conclusion that the diminution of the hypermetropic astigmatism has been due to the transference of these cases to the myopic group. On the whole the condition of the eyes of London children is very fair, especially if we compare them with similar returns collected in Germany. The greater proportion of the cases of bad vision are due to natural conditions of the eye, that is, hypermetropia and hypermetropic astigmatism. Newborn infants are always hypermetropic. The incidence of "manufactured" bad vision, myopia and its associated astigmatisms forms between a quarter and a third of the whole of the cases. The evidence of the deterioration of astigmatic eyes indicates the desirability of a special oversight of these cases. Mr. Harman did not think that a healthy school life was harmful to the sight of the child population. In conclusion, Mr. Harman criticised adversely the paper on "The Inheritance of Vision," by Amy Barrington and Karl Pearson. Several points in his experience led him to different conclusions. Miss Barrington and Prof. Pearson would lead us to suppose that the increase of myopia was

due to fate, and hopeless, but in practice we find that the amelioration of school conditions and the relief of strain in ill-shaped eyes does stay the increase.

Mr. Sydney Stephenson agreed that it was futile to examine children's refractions unless the accommodation had been paralysed by atropine. Some years ago he examined 6000 eyes, under the Poor Law, in children ranging from eighteen months to eighteen years of age. In these he found myopia present in 6·58 per cent. He agreed that among the poor children of this country myopia was not of serious frequency. In his own figures the females were almost twice as much subject to myopia as were the males. He agreed in ascribing this to their employment in indoor work and lack of healthy exercise.

Mr. Ernest Clarke said that, although the subject was a tempting one, he would confine himself to reiterating what Mr. Stephenson had said as to the use of a cycloplegic. The statistics concerning the refraction of young people which were published without such were useless.

Philadelphia Pediatric Society.

Meeting held April the 13th, 1909, J. Claxton Gittings, M.D., President.

Lateral Subluxation of the Knee in an Infant.—Dr. J. T. Rugh showed the child, now aged 19 months, who had first been seen four months previously. She is the sixth child, and was breast-fed for thirteen months. Her only illness had been an attack of "some pulmonary trouble" between four and six months, during which she cried bitterly when picked up, showing some evident joint tenderness. She cut her first tooth at seven months, but did not walk until seventeen months. At fifteen months the mother first noticed a snapping of the left knee when it was moved freely, apparently causing no discomfort. Dr. Rugh saw it two weeks later, and found the cause to be lateral subluxation of the knee. There was marked relaxation of the structures about the knee, and the dislocation occurred when the leg was in partial flexion and the foot turned toward the other knee. Other joints were markedly relaxed, and there was evidence of malnutrition, but many of the signs of rickets were lacking. The child is now walking and improving constantly under proper hygienic treatment.

Double Congenital Calcaneo-valgus.—Dr. G. G. Davis showed a child, now aged over 3 years, whom he had first seen soon after birth. The general condition was so poor that there was doubt whether he would live. The feet were flexed so markedly that the dorsum was in contact with the anterior portion of the leg. They were also everted, and there was considerable prominence instead of a hollow in the soles of the feet. They were rotated outward so that the patellæ pointed laterally instead of anteriorly. The knees were also somewhat contracted. Treatment was first directed to the child's general condition rather than to correcting the deformity. The mother was instructed to stretch the feet daily and bring them as near as possible into a normal position. As the child improved, more forcible

stretching was done with the hands, the feet being put into plaster bandages every few weeks. For a time tin splints were used, replaced by apparatus as the child grew. Manual stretching was, however, continued. To correct the valgus the foot was firmly laced in the shoe aided by a double instep strap. To prevent calcaneus a heel strap was employed. To straighten the knees the apparatus was locked at the knee-joints, and a knee-cap was used to draw them back, and so favour extension. To correct external rotation the apparatus was carried up to a waist-band, which position kept the toes pointing forward. By these measures the deformities were largely overcome. The child was doing well and walking when he caught pneumonia, and for the past six months treatment has been neglected. While the case has relapsed considerably, the conditions are far better than they were at birth. The prognosis, with continued treatment, is very good. No operation was needed. While valgoid conditions are not rare, such a degree of equino-valgus as exhibited by this child is very seldom encountered.

Dr. Rugh expressed regret that Dr. Davis had not discussed the ætiology of this case, as this was always most interesting to him. The slight flexion of the knees, together with the peculiar facial expression and uncertain head movements, pointed to some cerebral lesion as the cause. Calcaneo-valgus is not uncommon in the new-born, but in those cases in which there is no lesion of the central nervous system, the condition almost always corrects itself, or is very easily corrected by manipulation or mechanical means.

Dr. Davis said that Dr. Rugh's case was a good example of the cases brought to the orthopædist because they cannot walk. Examination of many of these cases shows no definite cause beyond rickets, which needs treatment.

Pott's Disease.—Dr. James K. Young showed a woman, aged 45 years, who had come for treatment after having suffered five years without any local treatment. She had had a large lumbar abscess for four years, finally operated upon by a gynæcologist. Under the use of a Taylor spine-brace the abscess closed in four months, and she has remained perfectly well since. She exhibits a high degree of deformity, her height being now less than a girl of ten years.

Dr. Young then showed a girl, aged 10 years, whom he had seen first four years ago, with deformity already produced in the upper dorsal region and paraplegia. He devised an apparatus fixing head, neck, and spine in one piece, which was immediately copied by Dr. Riely with such success. She was placed in a wheel coach of special design upon a tray, making pressure upon the posterior part of the spine. During the manufacture of the brace she made a perfect recovery, and shows a straight spine, while those who saw her wear her cuirass were surprised at the comfort she experienced in it.

The Early Diagnosis and the Treatment of Pott's Disease.—Dr. Compton Riely, of Baltimore, Md., read this paper by invitation. He means by early diagnosis the detection of the trouble before the occurrence of angular kyphosis, marked sensory or motor disturbances or palpable abscess. The disease is almost, if not as frequent in adults as in childhood, but manifests itself differently in the two ages, being commonly diagnosed in the adult as disease of some organ or organs on account of its slower progress and the more frequent unilateral pains, which remain in one location longer, due to the larger size and greater proportion of mineral salts in their bones, which offer a greater resistance to the tubercle bacilli. There are also some differences in female adults, referable to the female generative organs.

The early symptoms are: Transmitted pains, at any part of the body or limbs below the seat of the disease, unilateral or bilateral, more severe at night and intermittent in character; weakness, stiffness, numbness, tingling of the limbs, loss of appetite, sleeplessness, malaise, slight elevation of evening temperature; enuresis in children; frequent urination in adults, increased by exertion; persistent constipation, nausea and uncontrollable vomiting at times, persisting hours or days, especially in adults; grunting, painful respiration, coughing or sonorous breathing; nervousness, excitability, irritability, hysteria and neurasthenia, more common in female adults; pelvic pains and various menstrual disturbances in females past the age of puberty, with exaggeration of all other symptoms at the menstrual epoch, often causing them to undergo various operations from which they derive no benefit.

The early physical signs are: Guarded gait; restful attitudes, standing or sitting; inability to bend or stoop without effort or pain; forward tilting and projection of the pelvial rigidity of the muscles of the trunk and neck, especially the abdominal muscles; increased obliquity and co-aptation of the ribs; antero-posterior flattening of the chest; increased lordosis of the neck or lumbar region; increased backward projection of the dorsal region; increased tension of one or both of the psoas muscles at times; slight angular bend of the spine; increased deep knee-reflexes; night cries, night horrors and moaning. All of these symptoms and signs may be increased by jarring from riding, driving, walking, bending, lifting, stooping, etc. Patients presenting many or all of these signs and symptoms with a history of gradual onset and long duration, which have resisted medical and surgical interference, should lead one to suspect strongly Pott's disease, and a radiograph should be taken in the following manner: With a tube sufficiently soft to show the bones fairly dark, making a longer exposure, with the tube twenty-five to thirty inches from the plate. In tubercular disease of the spine, even before sufficient bone destruction has occurred to be detected, such a skiagraph will show a shadow of a cold abscess, and will greatly aid in making an early diagnosis.

Dr. Riely showed a number of radiographic lantern-slides showing tubercular abscess in patients whose ages ranged from seven to forty-five years whose histories were similar. Proof of his interpretation was that in some of the cases the abscess was actually opened. He also showed lantern-slides of typhoid spines, rheumatoid spines, and aneurysms, and explained how to differentiate the shadows of these conditions from cold abscess.

In both the ambulatory and recumbent methods of treatment the objective aim is to restore the anterior projecting and tilting pelvis to its normal posture, which will produce better straightening of the spine, restore the ribs and chest to normal conditions and relieve symptoms. Recumbency is advised during the acute stages, with extension and hyper-extension upon double, irregularly curved, inclined wooden planes, which are shaped to suit the requirements of the individual, so as to hyper-extend the spine at the seat of the disease. It starts by a thin edge on the back at a point opposite the anterior superior spine of the ilium, inclining gradually upward to the seat of disease, when it slightly changes its course until it reaches the occiput, when it curves suddenly to fit that region. Extending longitudinally on the middle of its upper surface is a groove to prevent too great pressure upon the spinous processes; this surface of the apparatus is well padded, the padding being thicker on the sides of the groove, thus giving this surface a transverse convex contour. The ambulatory method is advised for high

and double lesions, and consists of a shell aluminium brace that will support the whole spine and head, made over a metal case, the model of which has been obtained from an impression of the patient's back, neck, and back of head, corrected so as to reduce the lateral deviations, the lordosis in the cervical and lumbar regions, and the round shoulders or kyphosis in the dorsal region, the amount of correction depending on the amount of deformity, that of the severer forms being more gradual. Where the trouble is below the eighth dorsal vertebra a special spinal correcting apparatus which accomplishes the desired corrections during the application and setting of a plaster case will be needed.

Dr. Young said he was much interested in the subject as presented by Dr. Riely, especially the value of the use of the cuirass in the treatment of Pott's disease, and had discovered the value of this in treating the patient who was presented this evening. He had shown this patient at a meeting at which Dr. Riely was present. The first apparatus was made of felt; other cuirasses have been made of celluloid, which were found very light and satisfactory, but they cannot be changed in shape as well as those made of aluminium, which was first employed in this manner by Dr. Riely. A similar cuirass to the one which Dr. Young used has been employed by Dollinger, of Budapest.

Dr. Rugh said, where the focus of disease is high he relies more upon plaster-of-Paris applied in suspension. Each case, however, must be treated according to its own indications. For the past year Dr. Rugh has been employing the old treatment of abscesses by aspiration, washing with normal salt solution, and injecting 10 per cent. emulsion of iodoform with remarkable results. Many very large psoas abscesses have disappeared under one aspiration. For sinuses he employs bismuth paste, but for the distinct abscesses and as an anti-tubercular agent he considers iodoform to be superior.

Dr. Riely added that he had abandoned the use of hard felt, as it could not be made properly. In old sinuses he considers Beck's paste better than anything he has used.

Abstracts from Current Literature.

Medicine.

Dissecting aneurysm of the aorta in a boy aged 12 years; rupture into pericardium (*'St. Bartholomew's Hosp. Reports,' vol.* xliii).—**T. J. Horder** reports a case of dissecting aneurysm of the aorta in a boy, aged 12 years, which ruptured into the pericardium. The boy was admitted to the hospital under the care of Dr. Ormerod, suffering from pain in the chest. The heart showed the following physical signs: Apex beat in sixth interspace one inch outside the left mammary line. The area of cardiac dulness extended upwards to the second costal cartilage, but not to the right of the sternum. In the third and fourth interspaces, to the left of the sternum, a loud to-and-fro murmur was heard which was thought to be a pericardial friction sound. Pulse 136; respirations 28; no dyspnœa. A presystolic

rumbling murmur in the nipple line in the fifth interspace was heard later. Nine days after admission the boy was suddenly seized with a spasm of difficult breathing and died within a few seconds. Post-mortem: The pericardium contained 12 ounces of blood and blood-clot. The heart was small and almost empty of blood. The valves, myocardium and coronary arteries were natural. The first part of the aorta was elongated, greatly dilated, forming a large fusiform aneurysm. The fusiform dilatation ceased rather abruptly above at the level of the ductus arteriosus. Considerable end-arteritis was present, with nodular thickenings of the intima, but without ulceration. About an inch above the aortic orifice the inner and middle coats had been torn by a transverse rent, extending almost completely round the vessel. From the annular rent a second rent proceeded in an upward vertical direction in the posterior part of the vessel. Towards the pulmonary artery this ruptured part of the aorta was seen to be covered by a recent clot, and a dissecting aneurysm, the size of a small walnut, had formed in this situation, burrowing into the sheath which is common to the two vessels. There was a small hole in the sheath of the dissecting aneurysm indicating the rupture into the pericardium. The aneurysm was not manifestly due either to congenital syphilis or to the action of micro-organisms. The dissecting aneurysm probably originated at the time of the onset of pain in the chest, which was fourteen days before death.

James E. H. Sawyer (Birmingham).

Congenital hypertrophic stenosis of pylorus (*'Arch. of Pediat.,'* 1908, *p.* 686).—**J. Dorning** records a case in a male infant who was healthy at birth. He had vomited since birth, usually after each nursing. Artificial feeding was substituted but vomiting continued. The child was much emaciated. There was slight distension of the epigastrium, in which a nodule was felt. Operation and irrigation were refused. The child died at the age of nine weeks. No autopsy.

J. D. Rolleston.

A rubella epidemic (*'Arch. of Pediat.,'* 1908, *p.* 598).—**M. Michael.**—An epidemic of German measles broke out in an institution for children: 80 were attacked; 51 or 44·7 per cent. were boys, 29 or 34·1 per cent. were girls. The oldest patient was 14 years, 3 were under 2, 43 were between 2 and 6 years, 25 between 6 and 10, and 9 were over 10 years. In 35 fine branny desquamation occurred. The temperature ranged from normal to 102·2° F. In 48 the temperature was 99° or less, and lasted only two days. Mild conjunctivitis occurred in 32. In 19 there was slight coryza, and in 4 bronchitis. All except 3 suffered from glandular enlargement. Suppuration did not occur. Out of 64 cases examined leucopenia was found in 45, a normal count in 15, and leucocytosis in 4. Two relapses occurred. In both cases the second eruption appeared fifteen days after the first.

J. D. Rolleston.

Dental caries as a cause of disease in children (*'Arch. of Pediat.,'* 1908, *p.* 582).—**C. Herrman** reviews the numerous morbid conditions which may arise from dental caries, especially ulcerative stomatitis, cervical lymphadenitis, digestive disturbances and malnutrition. He found that out of 1200 school-children dental caries was present in 72 per cent. The highest percentage was found in children between 7 and 8 years. Of 1446 children between the ages of 8 and 15, 236 brushed their teeth regularly twice a day, 602 once a day, and the remaining 608 not at all. In dis-

cussing preventive measures Herrman recommends an increase in the number of dental clinics. J. D. Rolleston.

Distribution of bacteria in bottled milk (*'Arch. of Pediat.,'* 1908, *p.* 591).—**A. F. Hess** found that streptococci, tubercle bacilli, and other bacteria are most numerous in the upper layer of the cream, especially in the upper two ounces. This portion should therefore be discarded. The partially skimmed milk which is left contains 3 per cent. fat and 3·5 per cent. proteid, and is well suited for infant feeding. J. D. Rolleston.

Obscure fever in infancy and early childhood (*'Boston Med. and Surg. Journ.,' vol. ii,* 1908, *p.* 40).—**J. Lovett Morse,** in a survey of the various causes of obscure fever at this age, states that most cases of long-continued elevation of temperature without obvious cause are due to a mild degree of intestinal toxæmia. The temperature is usually not very high; in some cases it is continuous for weeks or months, in others it is intermittent. In most cases the general condition is more or less impaired, but a few children may preserve the appearance of robust health. Infants and young children are more exposed to, and less able to resist, auto-intoxication than older children and adults, since the antitoxic function of the liver is not so well developed and the intestinal secretions are not so abundant and active as in later life. Further, in infancy and early childhood, owing to the immaturity and irritability of the nervous system, a small quantity of poison which in later life would cause few or no symptoms may produce very severe ones. In the vast majority of cases dentition is not the cause of fever, the real cause being some disturbance of metabolism or intestinal toxæmia, but Morse has known cases where acute and high fever, sometimes of long duration, was due to disturbance of dentition alone. Bacterial infection of the urinary tract, usually secondary to gastro-enteritis and due to *B. coli,* is a commoner cause of obscure fever in infancy than later. Tuberculosis is probably seldom the cause of continued fever in early childhood. At this period tuberculosis tends to be disseminated and to run a rapidly fatal course. Chronic latent cases are therefore rare. Syphilis, though so important a cause of obscure fever in older children and adults, is probably not so in infancy and early childhood. J. D. Rolleston.

The teaching of writing from an ophthalmological standpoint (*'Rev. d'Hyg. et de Méd. infant.,' vol.* VII, *No.* 4, 1908, *p.* 330).—**A. Péchin** and **C. Ducroquet** contribute an interesting paper on this subject with illustrations. They arrive at the conclusion that all kinds of writing induce vicious attitudes. Upright writing is the most dangerous, because it is the most fatiguing, and necessitates a position of resting in which the pupil supports himself on one buttock. This position causes deformities and scoliosis of ligamentous origin in predisposed children. It is a fallacy to attribute to upright writing the merit of obviating one of the principal causes of myopia. The distance of the seat from the table should be such that the pupil when sitting upright has his elbows touching the table, the arms slightly separated from the trunk (about 30°), the arms thus becoming *crutches for the trunk.* Too low a table should be avoided, since its greater distance from the head induces the pupil to stoop. To counteract the tendency for the pupil to sit on one buttock, the table should be sufficiently long for the two forearms with the elbows to be able to rest easily in a position suitable for writing. A seat too near the table

encourages thoracic deformity by pressure on the sternum. A good position is the best preventive of visual trouble. VINCENT DICKINSON.

Experiences in broncho-pneumonia (*'Dom. Med. Monthly,' November*, 1908).—**McVicar** reports on 75 cases: 64 were primary and 11 secondary; 45 males, 30 female; 24 per cent. occurred in the month of February. Deaths were 39 per cent. from primary and 73 per cent. from secondary broncho-pneumonia. It was found that the most serious feature in determining the prognosis was not the temperature or pulse but the rapidity of the respirations, the average maximum of 95 cases ending in death being 68, and of 39 cases with recovery 58. Hydrotherapy was proved of the greatest value; fluid by the mouth was pushed. Warm packs seemed the best method of controlling nervous symptoms, cold sponging being distressing to the child. Poultices were found to hinder free respiration, as shown by an increased rate of respiration following their use. Bleeding was used and found of value. Whiskey was considered of the greatest value owing to its action as a cerebral sedative, soothing restlessness. Expectorants appeared to be useless, and so was belladonna and atropine. Oxygen was of great value. Strychnine was used, but had to be discontinued in five cases on account of muscular twitchings. J. PORTER PARKINSON.

The nutritive value of homogeneous milk (*'Monatschr. f. Kinderheilk.,' June*, 1908).—**Von Birk** reported that, according to experiments made in France, success had been obtained in so altering cows' milk under high pressure that the fat globules appear in very fine suspension, finer than in human milk. This suspension is permanent and its coagulability is quite distinct from that of ordinary cows' milk. He could not convince himself of the practical advantage of this milk as recommended in France; neither in healthy subjects, nor in delicate children, in his opinion, did it effect more than ordinary milk. J. E. BULLOCK.

Heart spasm: a cause of habitual vomiting in nurslings (*'Therapeut. Monatshefte,' August*, 1908).—**Jöppert** relates an interesting observation in a nursling, who was seized with retching immediately on taking food. On passing the œsophageal sound there was found an impediment in the cardiac region, and, after gently overcoming this, the stomach (through the sound) could be felt to extend over the customary area. After continued feeding by tube the obstruction entirely disappeared. Jöppert considered the case also noteworthy because, according to Mikulicz, similar spasm over the præcordium may be the primary cause of dilatation of the œsophagus. J. E. BULLOCK.

Appendicitis in infancy (*'Monatschr. f. Kinderheilk.,' June*, 1908).—In connection with cases of repeated attacks of vomiting, fever and restlessness in children past the first year of life, **Berkholz** relates the history of a child one and a half years old suffering from a fourth recurrence, in whom the symptoms of appendicitis were so evident that after a little while laparotomy was undertaken, and there was found an ulcerous change in the vermiform appendix. J. E. BULLOCK.

On the value of causes influencing infant mortality (*'Arch. f. Kinderheilk.,' Bd.* 48, *Heft* 5-6).—In connection with recent statistics, which have thrown doubt upon the influence of feeding on infant mortality, and in its place have attached more importance to the social position of the

parents, **Tugendreich** has instituted inquiries respecting children, of similar social status, naturally and artificially reared, and has shown that, certainly among the poor, the mortality of children artificially reared markedly exceeds that of breast-fed children. He thinks also that the diet of working women is sufficient for lactation, and would have this opinion made widely known. J. E. Bullock.

Scarlatinal rheumatism and neuritis (*'Arch. f. Kinderheilk.,' Bd.* 48, *Heft* 3–4).—As the result of many observations, **Wladimiroff** thinks that besides typical joint swellings after scarlet fever, joint affections are often simulated, and that cases in which lasting pains in the extremities exist may be diagnosed as post-scarlatinal neuritis. J. E. Bullock.

The increase of fat in human milk by the increased consumption of fat (*'Arch. f. Kinderheilk.,' Bd.* 48, *Heft* 3–4).—**Moll** finds that by the supply of fat food an increase of fat in the mother's milk can be produced, and an increased growth of the child be obtained. The improvement in the child shows itself not only by an increase in weight, but by an improvement in the stools. He thinks this should have a bearing on the proper feeding of a wet nurse in private families. J. E. Bullock.

So-called congenital and early acquired rickets (*'Jahrb. f. Kinderheilk.,' Bd.* 67, *Heft* 6.)—**Wieland** brings forward important considerations on the question of congenital rickets. A congenital softening of the cranium is often met with, but this skeletal anomaly has nothing to do with true rickets, and shows another anatomical condition altogether different from typical craniotabes; but a large number of children with this softening of the cranium show later signs of rickets. Wieland thinks that the clinical proof of rickets in the new-born is not possible, and defers to a later period his histological investigations relating to the question.

J. E. Bullock.

Pathology.

Case of congenital syphilitic aortitis (*'Journ. of Pathol. and Bacteriol.,' vol.* xii, *p.* 2).—**Oskar Klotz.**—Still-born male child, born of a healthy mother, but an indefinite history of syphilis was obtained from the father. The anatomical findings in the child were: atelectasis of the lungs, petechial hæmorrhages of the thymus and pleura, enlarged spleen, hæmatoma of the scalp, rudiment of spina bifida over the coccyx, and syphilitic aortitis. In the arch of the aorta there was an area of change in its wall, with some blood infiltration of its deeper layers. This arterial change extended from the arch towards the ascending aorta, and the affected area was somewhat raised. When viewed from the intimal surface there were noticed irregularly radiating grooves furrowing the surface over the arch, like the puckerings of the intima seen in acquired syphilis. No break was found in the intima to account for the infiltration of blood in the vessel wall. On section the vessel wall was so altered that there was difficulty in locating the different layers. The intima was thinned, the surface was not smooth, and the whole of the intima was permeated by fine elastic threads, which formed a kind of network through it. The internal elastic membrane was present as a broken-up lamina, which besides being partially destroyed was also split up longitudinally into several lamellæ. The connective tissue

of the intima was fairly cellular, but there was no infiltration of leucocytes. There was loss of tissue at one portion of the lamina where it lay over the hæmorrhagic area. The media showed the most change. The boundary zone showed a small-celled infiltration which was particularly localised about the vasa vasorum. At the site of the blood infiltration the medial tissue was almost entirely lost. Towards the lateral margins of the hæmorrhage the media was seen in the process of destruction, in which the muscle and elastic fibres were involved. A stringy tissue without nuclei was all that remained of the tissue of the media. The elastic fibres existed only in isolated patches. This process of necrosis had advanced close to the adventitia. In some parts of the media there were small dense aggregations of fibrous tissue. The adventitia showed a small-celled infiltration about the vasa, the leucocytes having mostly the character of lymphocytes.

James E. H. Sawyer (Birmingham).

Leucocyte count in normal children and in pertussis (*'Arch. of Pediat.,'* 1908, *p.* 831).—**H. O. Mosenthal** examined the blood of "normal" children at the New York Foundling Hospital, and found that the average leucocyte count varied between extremely wide limits (29,600 to 7000). He attributes the leucocytosis to the fact that nearly all of them suffered from rickets, subacute bronchitis and secondary anæmia. There was a slight diminution in the polymorphonuclears with a corresponding increase in the mononuclears as compared with other children. During the catarrhal stage of pertussis the leucocytes increase to about double the normal, and the mononuclears increase about 5·5 per cent. at the expense of the polymorphonuclears. In the paroxysmal stage the changes were less marked. He regards a leucocytosis with an increase in the mononuclears at the expense of the polymorphs as an aid in the diagnosis of pertussis during the catarrhal stage. In cases which have a cough, but do not develop pertussis, leucocytosis may occur, but there is then a marked increase of polymorphs at the expense of the mononuclears. These blood changes may therefore be regarded as of value in the diagnosis of whooping-cough.

J. D. Rolleston.

Therapeutics.

Treatment of cerebro-spinal meningitis with Flexner's serum (*'Edinburgh Med. Journ.,' October,* 1908).—**Claude Ker** describes his experiences of this treatment in a series of thirty-three cases during a recent epidemic of cerebro-spinal meningitis in Edinburgh. The normal dose adopted for children was 30 c.c. if possible, but if much less fluid than this amount was obtained on lumbar puncture 15 c.c. were substituted, and in particularly bad cases the remaining 15 c.c. were given subcutaneously. The best plan appeared to be to repeat the injection daily for the first three or four days. If the injections were taken badly and were followed by restlessness or distress, it was considered advisable to wait a day or two. Usually as much fluid as would flow freely was removed by lumbar puncture, and then as full a dose of the serum was given as could be introduced without causing pressure symptoms. The broad rule was laid down that less was to be injected than had been abstracted. The favourable results to be noted are: A lower temperature next day and frequently less delirium; some return of consciousness; an improvement in the colour of the complexion; a diminution in the pain and stiffness about the head; and,

occasionally, something in the nature of a crisis, with rapid amelioration of the symptoms. The mortality in his thirty-three cases, admitted in all stages of the disease, was 14. He was struck by the completeness and rapidity of the recovery in successful cases, as contrasted with the results of this disease in patients not so treated. The survivors of the latter class usually had been some two months in the hospital before becoming fit to be discharged, and were often totally deaf. The Flexner cases were discharged completely well, with two exceptions, and few were detained in the hospital for more than a month. In the case of relapses, also, the serum proved very efficient. G. A. SUTHERLAND.

Treatment of tetanus with subarachnoid injections of magnesium sulphate (*'Amer. Journ. of the Med. Sciences,' December*, 1908).—**Robert Miller.**—The case was a boy, aged 7 years, suffering from acute tetanus, and admitted to hospital on the tenth day. The boy was knocked down by a cart; he fell on some sharp cobble stones and sustained a lacerated cut on one of his palms. The first symptoms appeared seven days afterwards. After admission to hospital eleven lumbar punctures were made within thirteen days, approximately 2·5 c.c. of a 25 per cent solution of magnesium sulphate being injected into the meninges at each puncture. Extensive paralysis followed each injection and involved usually all the muscles, except those of the head, neck, and diaphragm, lasting eighteen to twenty-nine hours. The injections were followed several times by respiratory collapse, lasting eleven to fourteen hours, and the pulse dropped, though not to a dangerous level. Antitoxin daily for fourteen days in doses varying from 1500 to 7000 units, copious saline enemas and effusions and sedatives for a short time were also used in the treatment. The lacerated wound was excised and the part carefully carbolised. The chief danger in the use of intra-spinal injections of magnesium sulphate lies in its direct depressing influence upon the respiratory centre. Miller gives brief extracts of thirteen other reported cases treated by this means. Of eleven cases treated by subarachnoid injections five recovered, giving a mortality of 55 per cent. Three cases treated with infusions of sulphate of magnesia injected subcutaneously all recovered; the cases were all mild ones. The rationale of the treatment seems to be that the magnesium sulphate achieves complete muscular relaxation, and this benefits the patient inasmuch as it prevents rapid exhaustion due to convulsions and allows of the patient taking nourishment. J. ALLAN (Edinburgh).

Treatment of severe forms of broncho-pneumonia (*'La Clin. Infant.,' November* 15, 1908, *No.* 22, *p.* 703).—**Le Gendre** says that in congestive asphyxiating forms the first indication is to produce reflex vaso-constriction, and this is most successfully accomplished by cold thoracic packs, a method far preferable in these cases to cupping glasses, and especially to vesicants, which should be absolutely forbidden in acute bronchitis and broncho-pneumonia of childhood. Wrapping the whole body in wet clothes can also be employed. The first method is carried out as follows: Take some tarlatan, long and wide enough to envelope the thorax from the navel to the shoulders, and fold it several times so as to make a fairly thick compress. Commercial tarlatan is full of starch and must be freed from this by soaking. When it is sufficiently soft it is folded into a dozen thicknesses, and soaked in cold water at a temperature of 18° F. and applied moist, but not dripping, round the infant's thorax as far as the neck, flaps

being cut to cover the shoulders; the whole is then covered with "chiffon taffetas." The first effect of this procedure upon the infant is a deep reflex inspiration; he begins to cry, which previously he had not strength to do. The compress is left *in situ* a quarter of an hour and the application is renewed every quarter of an hour, and after a few applications the infant falls asleep. In less severe cases the applications are made every hour or every two or three hours. This method of treatment acts, first, by producing an internal vaso-constriction of the pulmonary capillaries, and second, a vaso-dilatation of the cutaneous capillaries. VINCENT DICKINSON.

Meningococcic serum (*'Med. Press,' January* 6, 1909).—At another meeting of the Gesellschaft **Kraus** and **Baecher** gave their experience of their new serum for meningitis, with which they have been experimenting for some time past. The first proof of its efficacy was by the opsonic method of Neufeld, which, as expected, was quite satisfactory. The next point was its application, and this they considered as most important. They prefer Pfeiffer's method of injection into the peritoneum, where both antitoxic and opsonic powers can be accurately measured. The therapeutic results which they have obtained in hospital are that two-thirds of the hopeless cases have recovered. The cases selected were those which had been given up as hopeless, so that mild conditions have not yet been tested.

T. R. WHIPHAM.

Otology, Laryngology, and Rhinology.

Otogenous intra-cranial complications in children (*'New Orleans Med. and Surg. Journ.,' January*, 1909).—**Homer Dupuy** describes the case of a male child, aged 5 years, who had slight right earache on January 26, 1908, and no further trouble until February 1, when pain in the stomach, vomiting and intense headache set in. Gastro-intestinal disturbance and, later, meningitis were diagnosed. Incision of both drums on February 10 resulted in pus evacuation in the right side. The antrum was opened on February 12 on account of right internal strabismus, opisthotonos, contracted pupils and flexor contractures of the lower limbs. There was an exposed area over the tegmen antri with an extra-dural collection of pus, together with lateral sinus thrombosis. The child recovered, the left mastoid requiring operation also on February 15.

MACLEOD YEARSLEY.

A case of fatal venous hæmorrhage from the ear in a nursling (*'Norsk. Mag. f. Lag.,'* 1907, *p.* 1425).—**Uchermann** reports the case of a child, aged 1 year, who developed an acute swelling on the left side of the neck, and later a purulent discharge from the ear. After four days there was a sudden hæmorrhage from the ear. The child was brought to the hospital and hæmorrhage recurred. Partial resection of the mastoid proved this to be healthy. The posterior meatal wall was resected; it was then found that the hæmorrhage originated from the anterior meatal wall directly at the drum. Pyæmia and pleuro-pyæmia ensued. Fourteen days later renewed severe hæmorrhage resulted fatally. The autopsy showed an opening in the auditory canal leading into an abscess cavity, which communicated with the internal jugular vein by a small opening.

MACLEOD YEARSLEY.

Ascaris lumbricoides escaping through the ear (*'Ugeskrift for Laeger,' No.* 6, 1909).—**Holm** reported a case in which an *Ascaris lumbricoides* passed through the Eustachian tube and out of the ear in a child, aged $3\frac{1}{2}$ years. The mother stated that the child, whilst playing, suddenly began to sneeze and scratch her nose, and after a few moments to scream in agonising pain, holding her hand to her ear. Thinking that the child, who had been for some time suffering from post-scarlatinal otitis media, had been seized with sudden pain, the mother began to syringe the ear, when she saw a worm tying to work its way out of the ear. She pulled it out and brought it to Holm for inspection. Examination of the child revealed a large defect in the membrana tympani, but nothing abnormal was to be detected in the fauces.

MACLEOD YEARSLEY.

Tuberculosis of the ear (*'New York Med. Record,' September* 26, 1908).—**Sohier-Bryant** summarises his subject thus: Tuberculous invasion of the ear is primary or secondary. Primary invasion is direct through the Eustachian tube or through the mastoid lymphatics. Tympanic tuberculosis is a very early sign of a more general infection. It also gives an accurate indication of the course of a concomitant pulmonary tuberculosis. Tuberculous mastoiditis has similar characteristics to tuberculous inflammation of other bones. Prognosis for the ear tuberculosis is good with proper hygiene and local treatment, and early thorough operative treatment in cases of bone involvement. Pyoctanin dry treatment is the most efficacious for tympanic tuberculosis. The evil effects of a tympanic tuberculosis may cause pulmonary tuberculosis to take a lethal course.

MACLEOD YEARSLEY.

The present status of the radical mastoid operation for the cure of chronic purulent otitis media (*'New York Med. Record,' October* 10, 1908).—**Wendell Phillips** considers that the radical mastoid operation is usually contra-indicated in young children because the disease is rarely of sufficient extent to require it; because it usually yields to local treatment, providing diseased adenoids and tonsils are removed; because by establishing free drainage through a large perforation, with well maintained local treatment, a cure usually results; and because it is better to place reliance upon these measures, aided by the marvellous recuperative powers of youth, than partially or wholly to destroy the hearing function.

MACLEOD YEARSLEY.

Surgery.

Intestinal obstruction in a child, aged 13 years, due to strangulation in Meckel's diverticulum (*'La Clin. Infant.,' December* 1, 1908, *No.* 23, *p.* 713).—**L. Dufour** communicated this case at the Soc. de Pédiât. The boy was admitted into hospital, having been ill for five days with violent abdominal pains and distension, vomiting and obstruction. Urine scanty, thirst intense, pulse 80, temperature 37·5° F. No trace of hernia. A laparotomy was performed the next day. About 25 to 30 cm. from the ileo-cæcal valve the small intestine was strangulated by a diverticulum 5 to 6 cm. long, attached to the anterior aspect of the intestine, through which a loop of gut about 40 cm. long had passed; at the point of strangulation it was ulcerated, the ulceration having invaded the serous and muscular coats, the mucous membrane being intact. Convalescence was uninterrupted.

VINCENT DICKINSON.

Congenital dislocation of the hip-joint (*'South Calif. Pract.,' August*, 1908). — **Richardson** advocates the Hoffa-Lorenz open method. He recently operated on a case where the acetabular socket was merely represented by a ring of cartilage; the acetabulum was deepened, and reduction easily accomplished without tenotomy or muscle division. The result showed no shortening, and the limping while walking is much less. The X-ray picture showed that anatomical reposition is perfect. This method answers best between the ages of three and ten. No muscles need be cut as a rule, and the after-treatment is much simpler than after the bloodless method.

J. Porter Parkinson.

Intussusception (*'The Post-Graduate,' January*, 1909). — **Erdmann,** since his last paper on this subject (*'Journ. Amer. Med. Assoc.,' January*, 1905), has operated on eleven cases in infants varying in age from four months to twenty-two months. Four were excised, all with fatal results; seven were reduced and all recovered. This horrible contrast emphasises the need for early operation in all cases. In 50 per cent. of the cases no tumour was found on palpation, it being often hidden under the costal arch of either side. The author strongly disapproves of all methods of air inflation or hydrostatic reduction, and recommends immediate operation. Reduction should always be tried by compressing the distal end of the tumour in the proximal direction, and *never* by traction. If reduction be impossible excision with anastomosis is necessary. **Rowen** (*'Boston Med. and Surg. Journ.,' January*, 1909) reports four cases of acute intussusception. He considers the history to be of the greatest importance: Sudden abdominal pain with screaming, pallor, and perhaps vomiting in a previously healthy infant. This often completely passes off for a short time, when the pain returns and blood and mucus may appear on the napkin. He states that the tumour is seldom felt, and when it can be palpated it is rounded and not sausage-shaped. In three of his cases no tumour could be felt. He strongly deprecates any form of treatment other than immediate operation.

J. Porter Parkinson.

A case of congenital fibroma of the finger with remarks on tumours of the finger (*'Wien. klin. Rundschau,' October* 18, 25; *November* 1, 8).—**Frank** remarks that tumours of the fingers are extremely rare as compared with those of other parts of the body. In this case there was nothing abnormal in the family history; none of the family—and there were many brothers and sisters—ever had any tumours. At birth two small swellings, the size of a pin's head, were noticed on the corresponding sides of the distal phalanges of the fourth and fifth fingers of the left hand. No notice was taken till the fourth month, when the swellings had grown considerably. On examination they were solid, rigidly circumscribed, semi-spherical, with the broad base upwards and about the size of two peas. The diagnosis was *ecchondroma* or fibroma. The tumours were removed; the adjoining tissues were not infiltrated. Microscopical examination showed a pure fibroma. One and a half years have now elapsed since the operation and only a small smooth scar shows the site of the tumour. In view of the possibility of sarcomatous development in congenital fibromata early operation is advisable, whilst watching the cases as long as possible.

M. D. Eder.